

Chapter 1 管理軟體

| | | |
|---------------------------------------------|-----------|-----|
| SmartView – Element Management System | SmartView | 1-1 |
|---------------------------------------------|-----------|-----|

Chapter 2 工業級骨幹交換器

| | |
|--------------------------|-------|
| 具有可靠度的工業乙太網路產品特色說明 | A1-A5 |
|--------------------------|-------|

| | | |
|-------------------------------------------------------------------------------------|------------|-----|
| Q1 24x 100/1000Base-X SFP+ 4x Combo (SFP+RJ-45) with 4x 10GBase-X SFP+ | ICS-24S4XM | 2-1 |
| Q1 24x 100/1000Base-X SFP+ 4x Combo (SFP+RJ-45) with 2x 10GBase-X SFP+ | ICS-24S2XM | 2-1 |

Chapter 3 EN 50155 乙太網交換器

| | |
|----------------------------|-------|
| EN 50155 乙太網路交換器特色說明 | B1-B2 |
|----------------------------|-------|

EN 50155 非網管型交換器

| | | |
|---------------------------------------------------------------|---------|-----|
| NEW EN50155 IP67 5x10/100Base-TX Ethernet Switch | ITP-500 | 3-1 |
| NEW EN50155 IP67 8x10/100Base-TX Ethernet Switch | ITP-800 | 3-1 |

EN 50155 網管型交換器

| | | |
|-------------------------------------------------------------------------------------------------|------------|-----|
| Q2 EN50155 IP67 Managed 8x10/100/1000Base-T + 2x100/1000Base-X SFP Ethernet Switch | ITP-G802SM | 3-4 |
| Q2 EN50155 IP67 Managed 8x10/100/1000Base-T Ethernet Switch | ITP-G800M | 3-4 |
| Q2 EN50155 IP67 Managed 8x10/100Base-TX + 2x100/1000Base-X SFP Ethernet Switch | ITP-802GSM | 3-9 |
| Q2 EN50155 IP67 Managed 8x10/100Base-TX + 2x10/100/1000Base-X Ethernet Switch | ITP-802GTM | 3-9 |
| Q2 EN50155 IP67 Managed 8x10/100Base-TX Ethernet Switch | ITP-800M | 3-9 |

EN 50155 網管型PoE交換器

| | | |
|--------------------------------------------------------------------------------------------------------------|------------------|------|
| Q2 EN50155 IP67 Managed 8x10/100/1000Base-T + 2x100/1000Base-X SFP with 8x PoE+ Ethernet Switch | ITP-G802SM-8PH24 | 3-14 |
| Q2 EN50155 IP67 Managed 8x10/100/1000Base-T with 8x PoE+ Ethernet Switch | ITP-G800M-8PH24 | 3-14 |
| Q2 EN50155 IP67 Managed 8x10/100Base-T + 2x100/1000Base-X SFP with 8x PoE+ Ethernet Switch | ITP-802GSM-8PH24 | 3-19 |
| Q2 EN50155 IP67 Managed 8x10/100Base-T + 2x10/100/1000Base-X with 8x PoE+ Ethernet Switch | ITP-802GTM-8PH24 | 3-19 |
| Q2 EN50155 IP67 Managed 8x10/100Base-T with 8x PoE+ Ethernet Switch | ITP-800M-8PH24 | 3-19 |

Chapter 4 IEC 61850-3 乙太網交換器

| | | |
|-----------------------------------------------------------------------------------------|------------|-----|
| NEW IEC 61850-3 8x 10/100/1000Base-T+ 3x 100/1000Base-X SFP Managed Switch | IPS-G803SM | 4-1 |
| NEW IEC 61850-3 8x 10/100Base-TX+ 3x 100/1000Base-X SFP Managed Switch | IPS-803GSM | 4-6 |

Chapter 5 工業級PoE系列

| | |
|---------------------|-------|
| 工業級PoE交換器特色說明 | C1-C2 |
|---------------------|-------|

工業級PoE交換器

非網管型

| | | |
|--------------------------------------------------------------------------------------------------------------|----------------|-----|
| 4x 10/100/1000Base-T+ 2x 100/1000Base-X SFP Slot with 4x PoE+ Ethernet Switch (120 Watts, 24V Booster) | IGS-402S-4PH24 | 5-1 |
| 4x 10/100/1000Base-T+ 2x 1000Base-SX/Lx Fiber with 4xPoE+ Ethernet Switch (120 Watts, 24V Booster) | IGS-402F-4PH24 | 5-1 |
| 4x 10/100/1000Base-T+ 1x 1000Base-SX/LX Fiber with 4xPoE+ Ethernet Switch (120 Watts, 24V Booster) | IGS-401F-4PH24 | 5-1 |
| 6x 10/100/1000Base-T with 4x PoE+ Ethernet Switch (120Watts, 24V Booster) | IGS-600-4PH24 | 5-1 |

網管型

| | | |
|-------------------------------------------------------------------------------------------------------------|------------------|------|
| 4x 10/100/1000Base-T+ 2x 100/1000Base-X SFP Slot with 4x PoE+ Managed Switch (120 Watts, 24V Booster) | IGS-402SM-4PH24 | 5-5 |
| 8x 10/100/1000Base-T+ 3x 100/1000Base-X SFP Slot with 8x PoE+ Managed Switch (180 Watts, 24V Booster) | IGS-803SM-8PH24 | 5-5 |
| 4x 10/100Base-TX+ 2x 100/1000Base-X SFP slot with 4x PoE+ Managed Switch (120 Watts, 24V Booster) | IFS-402GSM-4PH24 | 5-10 |
| 8x 10/100Base-TX+ 3x 100/1000Base-X SFP Slot with 8x PoE+ Managed Switch (180 Watts, 24V Booster) | IFS-803GSM-8PH24 | 5-10 |

工業級PoE介面光電轉換器

非網管型

| | | |
|-------------------------------------------------------------------------------------------------------|----------------|------|
| 10/100/1000Base-T to 100/1000Base-FX/SX/LX with PoE+ PSE Fiber Converter (30Watts, 12V Booster) | IMC-1000-PH12 | 5-15 |
| 10/100/1000Base-T to 100/1000Base-X SFP with PoE+ PSE Fiber Converter (30Watts, 12V Booster) | IMC-1000S-PH12 | 5-15 |
| 10/100Base-TX to 100Base-FX with PoE+ PSE Fiber Converter (30Watts, 12V Booster) | IMC-100-PH12 | 5-18 |
| 10/100Base-TX to 100Base-FX Fiber Converter with PoE PD | IMC-100-PD | 5-20 |

網管型

| | | |
|---------------------------------------------------------------------------------------------------------------|-----------------|------|
| 10/100/1000Base-T to 100/1000Base-FX/SX/LX with PoE+ PSE Managed Fiber Converter (30Watts, 12V Booster) | IMC-1000M-PH12 | 5-22 |
| 10/100/1000Base-T to 100/1000Base-X SFP with PoE+ PSE Managed Fiber Converter (30Watts, 12V Booster) | IMC-1000MS-PH12 | 5-22 |
| 10/100Base-TX to 100Base-FX with PoE+ PSE Managed Fiber Converter (30Watts, 12V Booster) | IMC-100M-PH12 | 5-26 |

PoE 網路延長器

| | | |
|-----------------------------------------------------------------------------------------|-------------|------|
| NEW Industrial LAN Extender with 4 Ports PoE (1.2km, Coaxial+twisted pair) | IEXT224-4PH | 5-29 |
| NEW Industrial LAN Extender with 4 Ports PoE (1.2km, twisted pair) | IEXT204-4PH | 5-29 |

PoE 乙太網饋電器

| | | |
|--------------------------------------------------------------------------------------|-------------|------|
| Gigabit Ethernet PoE+ Injector IEEE802.3at/af, 15.4/30/36/60/72W (24V Booster) | INJ-IG60-24 | 5-31 |
| NEW Gigabit Ethernet PoE+ Injector IEEE802.3at/af, 15.4/30/36/60W | INJ-IG01-PH | 5-33 |

Chapter 6 工業級乙太網交換器 & 轉換器

乙太網管理型交換器

非網管型

| | | |
|-------------------------------------------------------------------------------------------|----------|------|
| 4x 10/100/1000Base-T+ 1x 1000Base-SX/LX Gigabit Ethernet Switch | IGS-401F | 6-1 |
| 4x 10/100/1000Base-T+ 2x 1000Base-SX/LX Gigabit Ethernet Switch | IGS-402F | 6-1 |
| 4x 10/100/1000Base-T+ 2x 100/1000Base-X SFP Slot Gigabit Ethernet Switch | IGS-402S | 6-1 |
| NEW 5x 10/100/1000Base-T Gigabit Ethernet Switch | IGS-500 | 6-4 |
| NEW 5x 10/100/1000Base-T+ 1x 100/1000Base-X SFP Slot Gigabit Ethernet Switch | IGS-501S | 6-4 |
| NEW 8x 10/100/1000Base-T Gigabit Ethernet Switch | IGS-800 | 6-4 |
| 4x 10/100Base-TX+ 1x 100Base-FX Fast Ethernet Switch | IFS-401F | 6-7 |
| 4x 10/100Base-TX+ 2x 100Base-FX Fast Ethernet Switch | IFS-402F | 6-7 |
| 5x 10/100Base-TX Fast Ethernet Switch | IFS-500 | 6-7 |
| 8x 10/100Base-TX Fast Ethernet Switch | IFS-800 | 6-7 |
| Q1 5x 10/100Base-TX Fast Ethernet Switch (Compact Size) | IFS-500C | 6-10 |

網管型

| | | |
|---------------------------------------------------------------------------------|-------------|------|
| 4x 10/100/1000Base-T+ 4x 100/1000Base-X SFP Slot Managed Ethernet Switch | IGS-404SM | 6-12 |
| 8x 10/100/1000Base-T+ 3x 100/1000Base-X SFP Slot Managed Ethernet Switch | IGS-803SM | 6-12 |
| 8x 10/100/1000Base-T+ 12x 100/1000Base-X SFP Slot Managed Ethernet Switch | IGS-812SM | 6-12 |
| 16x 10/100/1000Base-T+ 4x 100/1000Base-X SFP Slot Managed Ethernet Switch | IGS-1604SM | 6-12 |
| 4x 10/100Base-TX+ 2x 100/1000Base-X SFP Slot Ethernet Managed Switch | IFS-402GSM | 6-17 |
| 8x 10/100Base-TX+ 3x 100/1000Base-X SFP Slot Managed Ethernet Switch | IFS-803GSM | 6-17 |
| 16x 10/100Base-TX+ 4x 100/1000Base-X SFP Slot Managed Ethernet Switch | IFS-1604GSM | 6-17 |

序列媒體轉換器

| | | |
|--------------------------------------------------|------------|------|
| RS-232/422/485 Daisy Chain Fiber Converter | IFC-FDC | 6-22 |
| RS-232/422/485 Fiber Converter | IFC-Serial | 6-22 |

乙太網光電轉換器

非網管型

| | | |
|-------------------------------------------------------------------------------------|------------|------|
| NEW 10/100/1000Base-T to 1000Base-SX/LX Fiber Converter (Compact Size) | IMC-1000C | 6-26 |
| 10/100/1000Base-T to 100/1000Base-X SFP Slot Fiber Converter (Compact Size) | IMC-1000CS | 6-26 |
| 10/100Base-TX to 100Base-FX Fiber Converter (Compact Size) | IMC-100C | 6-29 |
| 10/100/1000Base-T to 100/1000Base-SX/LX Fiber Converter | IMC-1000 | 6-31 |
| 10/100/1000Base-T to 100/1000Base-X SFP Slot Fiber Converter | IMC-1000S | 6-31 |

| | | |
|----------------------------------------------------------------------|------------|------|
| NEW 10/100Base-TX to 100Base-FX Fiber Converter..... | IMC-100 | 6-33 |
| NEW 網管型 | | |
| 10/100/1000Base-T to 100/1000Base-SX/LX Managed Fiber Converter..... | IMC-1000M | 6-35 |
| 10/100/1000Base-T to 100/1000Base-X SFP Managed Fiber Converter..... | IMC-1000MS | 6-35 |
| 10/100Base-TX to 100Base-FX Managed Fiber Converter..... | IMC-100M | 6-38 |

Chapter 7 串列設備伺服器

串列設備伺服器

| | | |
|------------------------------|----------------|-----|
| RS232 Serial Server..... | STE100A-232 | 7-1 |
| RS485/232 Serial Server..... | STE100A-Serial | 7-1 |

Chapter 8 工業級電源供應器 & SFP光纖模組

工業級電源供應器

| | | |
|---------------------------------------------------------------------|------------|-----|
| Industrial Power Supply, Input 85 ~ 264VAC, Output 24VDC, 48W..... | DR-4524 | 8-1 |
| Industrial Power Supply, Input 85 ~ 264VAC, Output 24VDC, 40W..... | MDR-40-24 | 8-1 |
| Industrial Power Supply, Input 85 ~ 264VAC, Output 24VDC, 60W..... | MDR-60-24 | 8-1 |
| Industrial Power Supply, Input 88 ~ 264VAC, Output 24VDC, 120W..... | DR-120-24 | 8-1 |
| Industrial Power Supply, Input 85 ~ 264VAC, Output 48VDC, 240W..... | DRP-240-48 | 8-1 |

SFP光纖模組

| | | |
|-----------------------------------------|---------|-----|
| 1.25G 1000Base-X, 1.25G 1000Base-T..... | GbE SFP | 8-3 |
| 155Mbps 100Base-FX..... | FE SFP | 8-3 |



EMS SmartView™

-出眾的設計，實時監測和控制-

警報管理

- Trap 收集功能刪除
- 即時警報
- 郵件與SMS警報通知

配置管理

- 網路拓撲
- 網路裝置配置
- 網路裝置搜索

帳務管理

- 所有資產的位置、狀態以及序號皆可管理與匯出

性能管理

- 可監控網路裝置的性能參數(如ES、UAS等PDH PM資料)生成圖表，顯示不同的趨勢資料

安全管理

- 使用者權限
- 使用者操作



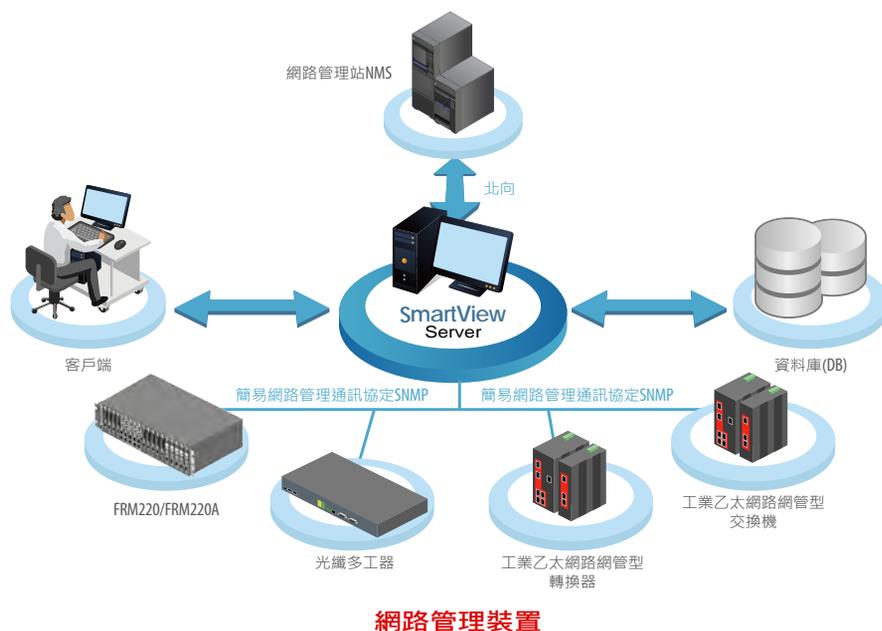
EMS SmartView™ Element Management System

- 集中式網路管理平台
- 即時警報處理
- 簡易的使用者操作介面
- 長期事件記錄

- 遠端存取控制，有效率的配置作業
- 流量監控與性能管理
- 警報事件記錄管理

- 自動搜尋與裝置檢視器
- 允許多達 25 個系統管理員連線操作
- 適用於 CTC Union 主要產品

網路流程圖



- 容易使用的操作介面
- 穩固的客戶端/伺服器架構
- 網路監控與管理
- 持續儲存事件資料庫
- 安全存取管理

管理裝置

所有擁有SNMP功能的CTC Union產品，如FRM220/220A平台、FMUX系列光纖多工器以及工業用網管型交換機等，皆可用CTC SmartView™ EMS管理平台進行管理。

SmartView™ 伺服器

SmartView™伺服器利用SNMP協定與網路裝置進行連接，並負責處理客戶端連線請求。此外，SmartView™伺服器收集網路裝置資訊，將這些資訊轉存至資料庫，並更新資訊給客戶端。

Microsoft® SQL 伺服器

SQL伺服器是SmartView™收集資料(如警報、使用者操作記錄)的存放之處，持續儲存事件記錄。SmartView™需搭配微軟®SQL伺服器。相容的版本包括SQL 2005、SQL 2005 Express、SQL 2008、SQL 2008 Express、SQL 2012以及SQL 2012 Express。(EMS安裝程式預設為安裝微軟® SQL 2008 Express免費版本。)

工作站-客戶端

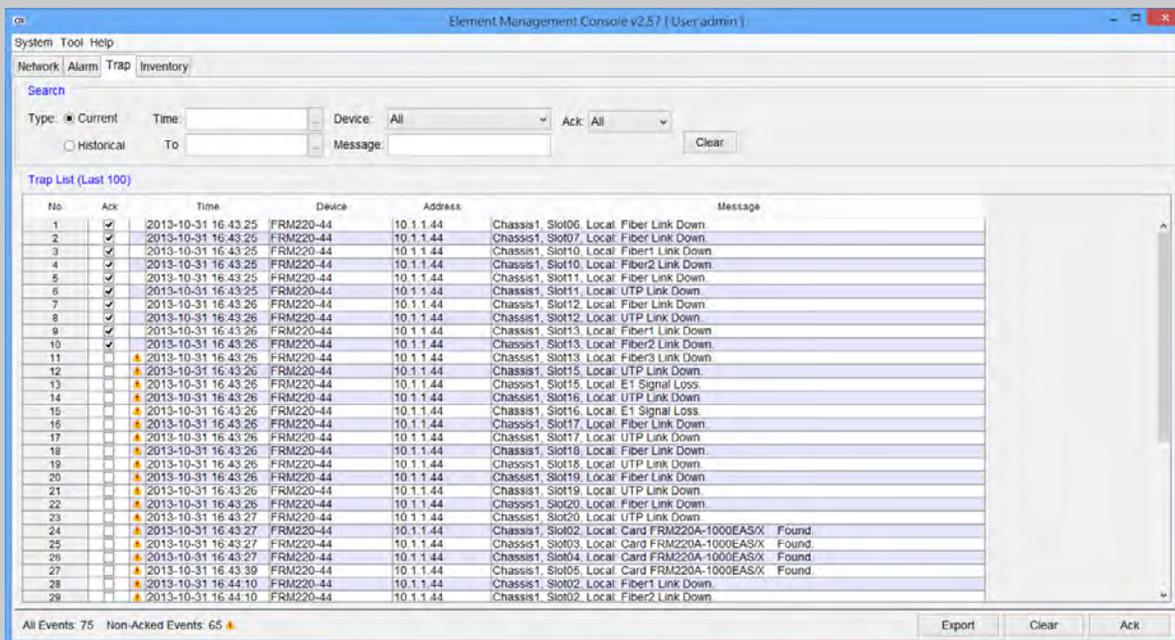
客戶端提供 JAVA 圖形使用者介面(GUI)，可遠端監控各個網路裝置，接收網路裝置警報訊息。多達 25 個使用者可同時連線伺服器進行作業

功能概覽

警報管理

Trap收集

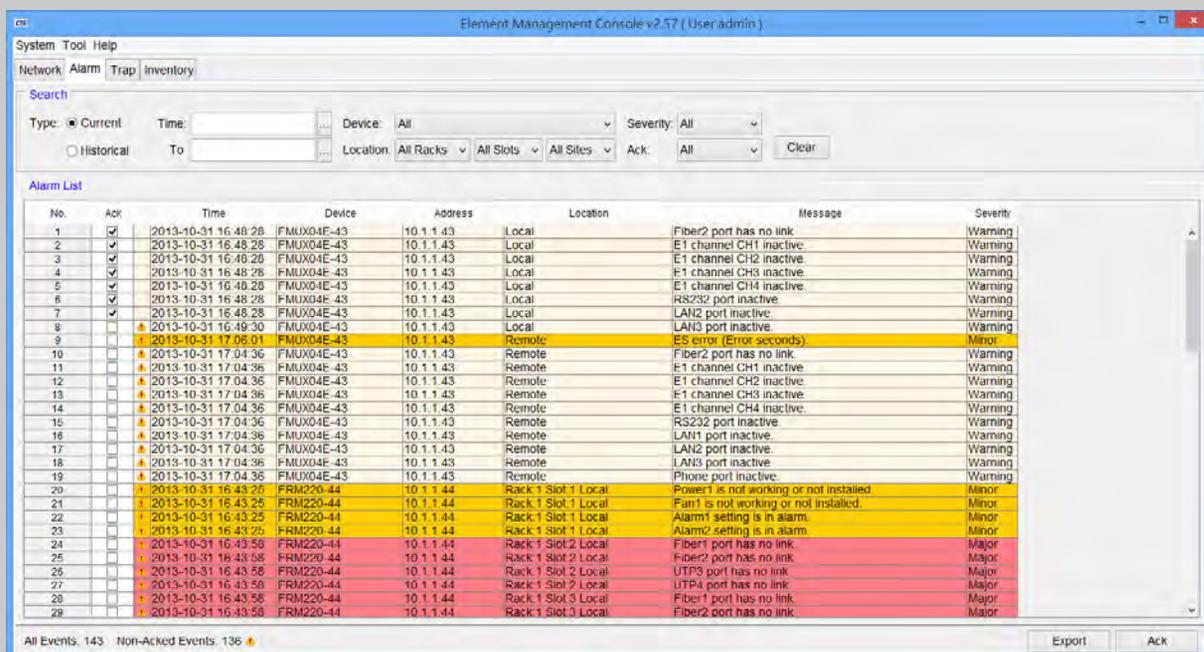
所有Trap訊息將儲存於SQL資料庫。當SNMP網路裝置發生異常狀況時，網路裝置會寄送SNMP Trap訊息到SmartView™，隨後SmartView™會收到訊息並記錄在資料庫。SmartView™可發出聲音警報、寄送郵件或SMS警示訊息，或僅於管理控制台顯示警報訊息。



Trap 訊息

即時警報

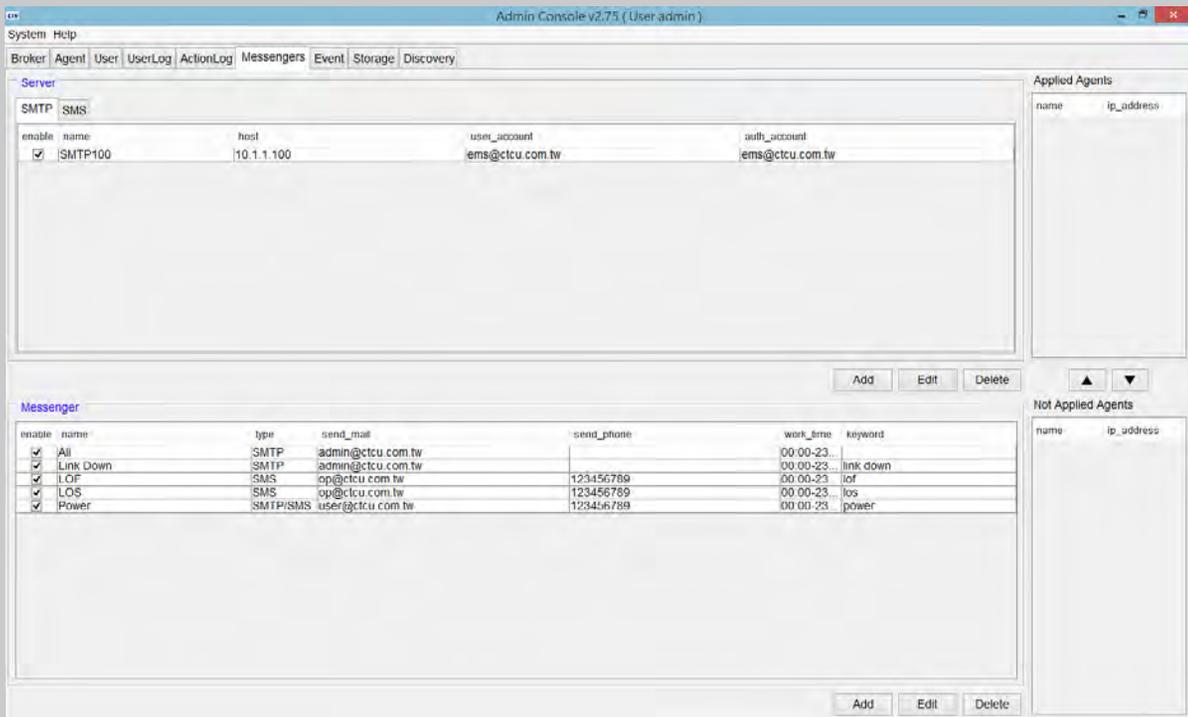
SmartView™會持續輪詢(poll)網路裝置，以視覺化的方式顯示所發現的警報狀況。警報依據嚴重性分為重大(Major)警報、次要(Minor)警報或警告(Warning)。主動顯示於警報頁面，直到警報狀況解除。



即時報警

郵件與SMS警報通知

當緊急警報狀況發生時SmartView™可寄送郵件與/或SMS文字訊息到指定的系統管理員。即時通知系統問題，將解決網路問題所花費的時間降到最低。

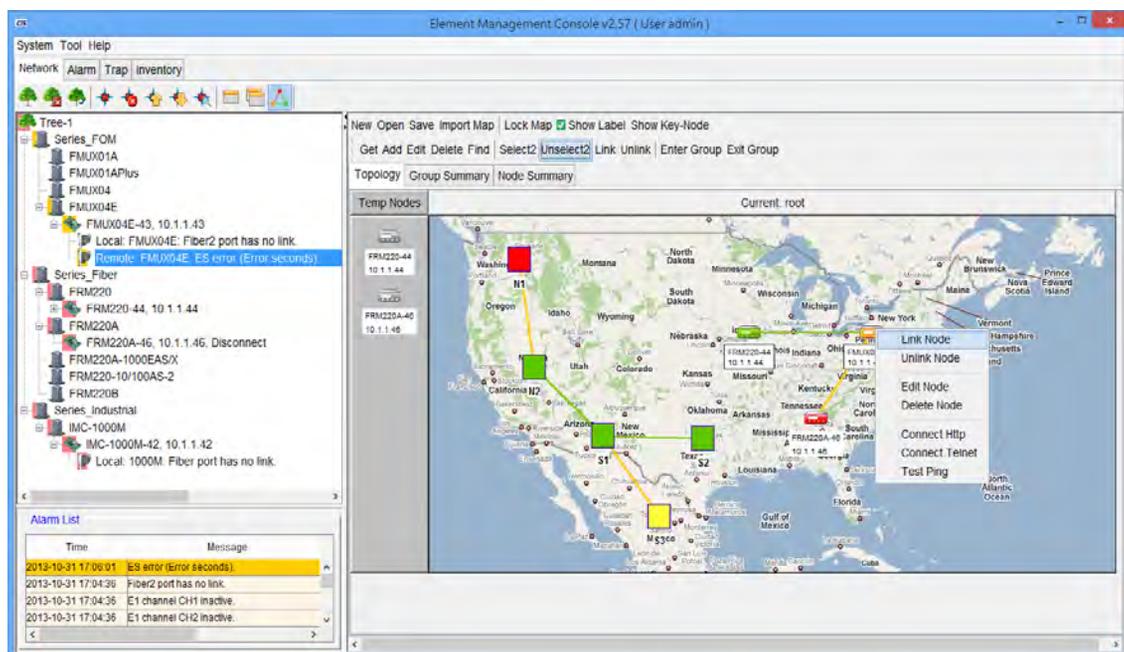


以郵件與SMS寄送警報

配置管理

網路拓撲

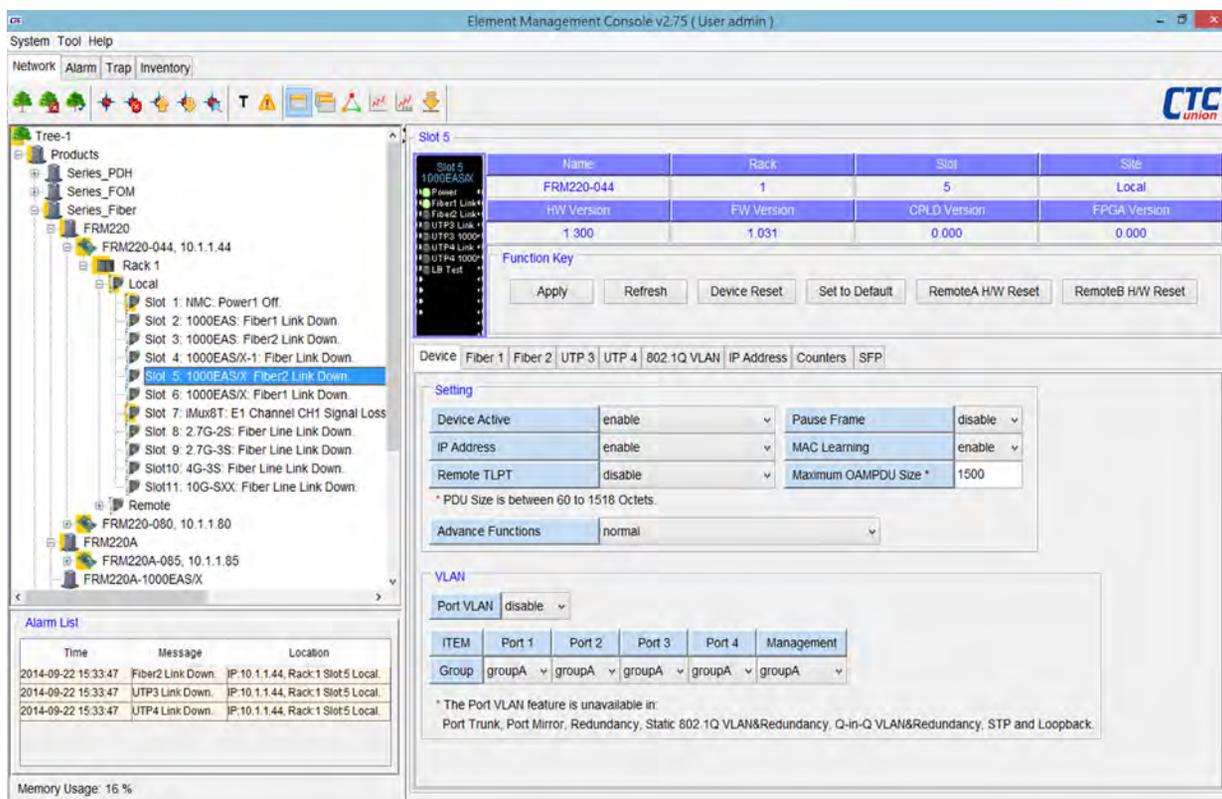
使用者可以上傳地圖至SQL 伺服器、讀取SQL 伺服器中的地圖或刪除附加的地圖。可使用拖放方式，將網路裝置圖示放置於地圖區中。網路裝置圖示可外加任何標籤或位置名稱。紅色圖示代表裝置目前正發生警報狀況。在圖示點擊右鍵即可開啟快顯視窗，以直接選擇Telnet或http的管理方式。



網路拓撲

網路裝置配置

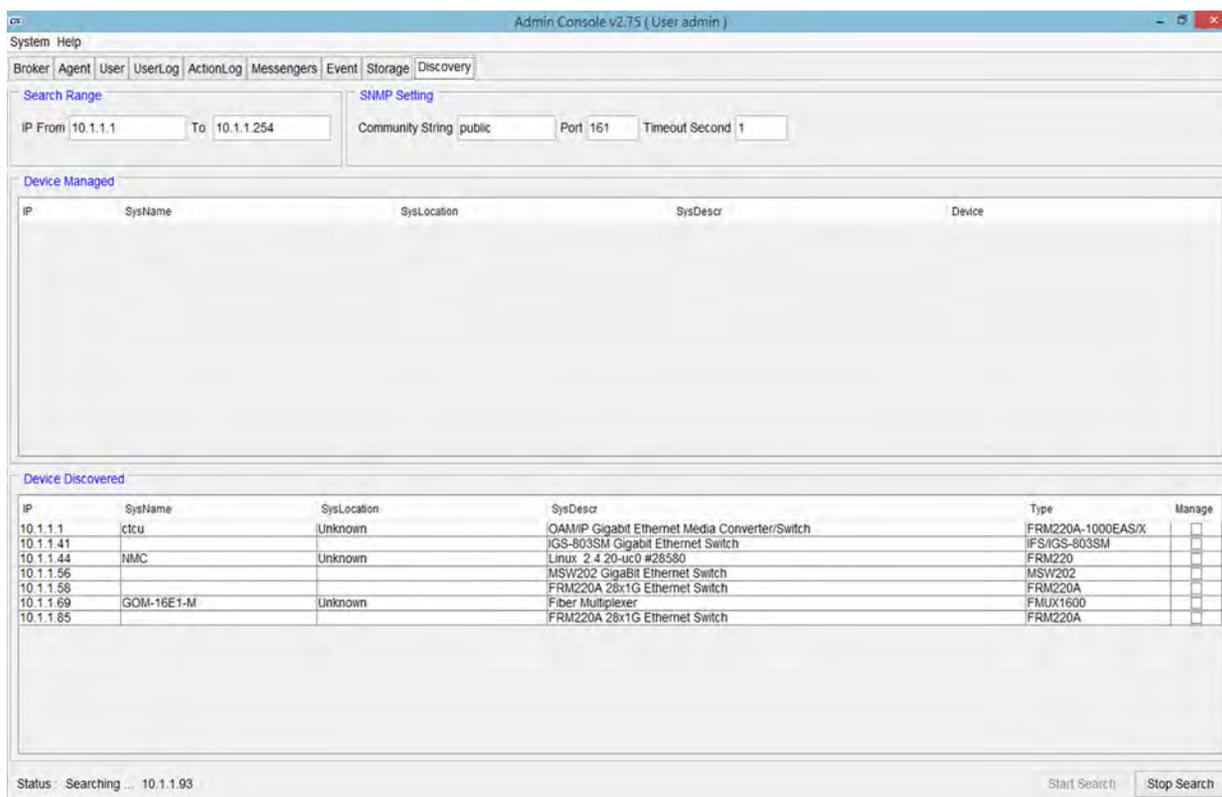
SmartView™提供網路設置配置工具。多數的設定只需要點擊滑鼠即可完成。版面採取標籤設計，可免除大部分的捲動動作。配置工具可顯示當前設置項目與狀態，硬體和韌體版本。



網路設備配置

網路裝置搜索

SmartView™提供自動搜尋SNMP網路裝置工具。只要輸入IP位址範圍，系統將自動搜尋 SNMP 網路裝置。搜尋後，可選擇網路裝置加入伺服器輪詢管理。



網路裝置搜索

帳務管理

帳務管理支援讀取網路裝置與機架卡板的原廠出廠序號。所有資產的位置、狀態以及序號皆可管理與匯出。

| No. | Device | Address | Location | Type | HW Version | FW Version | Serial Number | Alias | Status | Date |
|-----|------------|-----------|----------------------|------------|------------|------------|----------------------------------|-------|----------|------------|
| 1 | FRM220-44 | 10.1.1.44 | Rack:1 Slot:10 Local | Protection | 1.100 | 1.050 | 098765432101234567890 | | On Line | 2013-10-31 |
| 2 | FRM220-44 | 10.1.1.44 | Rack:1 Slot:19 Local | 1002ES | 1.100 | 1.000 | 88888888888888888888888888888888 | | On Line | 2013-10-31 |
| 3 | FRM220-44 | 10.1.1.44 | Rack:1 Slot:1 Local | NMC | 1.01 | 3.54 | F1234V012901313A00001 | | On Line | 2013-10-31 |
| 4 | FRM220-44 | 10.1.1.44 | Rack:1 Slot:7 Local | 8E1ET100S | 1.300 | 1.226 | 10124A368000000003861 | | On Line | 2013-10-31 |
| 5 | FRM220-44 | 10.1.1.44 | Rack:1 Slot:8 Local | 100IS_2 | 1.100 | 2.000 | F887B358D9198696ZNB0 | | On Line | 2013-10-31 |
| 6 | FRM220-44 | 10.1.1.44 | Rack:1 Slot:9 Local | 100IS_2 | 1.100 | 2.000 | 07203D1271246E6B2WS | | On Line | 2013-10-31 |
| 7 | FRM220-44 | 10.1.1.44 | Rack:1 Slot:12 Local | 10GE_TS | 1.100 | 1.001 | W6000357937260927635 | | On Line | 2013-10-31 |
| 8 | FRM220-44 | 10.1.1.44 | Rack:1 Slot:13 Local | 10G_SXX | 1.100 | 2.00B | None | | On Line | 2013-10-31 |
| 9 | FRM220-44 | 10.1.1.44 | Rack:1 Slot:14 Local | 3R10G_SS | 1.100 | 2.008 | 88B5AC34D90429AA0DA | | On Line | 2013-10-31 |
| 10 | FRM220-44 | 10.1.1.44 | Rack:1 Slot:15 Local | EOE1G | 1.100 | 1.023 | None | | On Line | 2013-10-31 |
| 11 | FRM220-44 | 10.1.1.44 | Rack:1 Slot:16 Local | EOE1G | 1.100 | 1.023 | BE37559BB78FB82FD0 | | On Line | 2013-10-31 |
| 12 | FRM220-44 | 10.1.1.44 | Rack:1 Slot:17 Local | 100M | 1.000 | 1.050 | 0AD7BEB10B6BYC6T7C3 | | On Line | 2013-10-31 |
| 13 | FRM220-44 | 10.1.1.44 | Rack:1 Slot:18 Local | 100M | 1.100 | 1.050 | 4PXRW2XKWBGVY33FB7 | | On Line | 2013-10-31 |
| 14 | FRM220-44 | 10.1.1.44 | Rack:1 Slot:20 Local | 1000M | 1.100 | 1.070 | A2C46823E6E44AWSW6 | | On Line | 2013-10-31 |
| 15 | FRM220A-46 | 10.1.1.46 | Rack:0 Slot:1 Local | 1000EASX | 1.200 | 1.026 | 0003579372609276304CA | | Off Line | 2013-10-31 |
| 16 | FRM220A-46 | 10.1.1.46 | Rack:0 Slot:2 Local | 1000EASX | 1.300 | 1.029 | None | | Off Line | 2013-10-31 |
| 17 | FRM220A-46 | 10.1.1.46 | Rack:0 Slot:3 Local | 1000EASX | 1.200 | 1.026 | 5F4B31307FB6BYC6T124 | | Off Line | 2013-10-31 |
| 18 | FRM220A-46 | 10.1.1.46 | Rack:0 Slot:4 Local | 1000EASX | 1.200 | 1.026 | A368000000038617C34PX | | Off Line | 2013-10-31 |
| 19 | FRM220A-46 | 10.1.1.46 | Rack:0 Slot:5 Local | 1000EASX | 1.300 | 1.026 | RW2XKWBGVY33099E07 | | Off Line | 2013-10-31 |
| 20 | FRM220A-46 | 10.1.1.46 | Rack:0 Slot:10 Local | 5E1ET100S | 1.300 | 1.226 | 437FB4C0EC93755FD100 | | Off Line | 2013-10-31 |
| 21 | FRM220A-46 | 10.1.1.46 | Rack:0 Slot:11 Local | 5E1ET100T | 1.200 | 1.061 | None | | Off Line | 2013-10-31 |
| 22 | FRM220A-46 | 10.1.1.46 | Rack:0 Slot:12 Local | 5E1ET100T | 1.200 | 1.061 | None | | Off Line | 2013-10-31 |
| 23 | FRM220A-46 | 10.1.1.46 | Rack:0 Slot:13 Local | 5E1ET100T | 1.200 | 1.061 | AL318C3QRBBRTK234CD | | Off Line | 2013-10-31 |
| 24 | FRM220A-46 | 10.1.1.46 | Rack:0 Slot:14 Local | 5E1ET100S | 1.300 | 1.226 | 7MG7D43TC3M392BWSW | | Off Line | 2013-10-31 |
| 25 | FRM220A-46 | 10.1.1.46 | Rack:0 Slot:15 Local | 8E1ET100T | 1.200 | 1.061 | None | | Off Line | 2013-10-31 |
| 26 | FRM220A-46 | 10.1.1.46 | Rack:0 Slot:16 Local | 8E1ET100S | 1.200 | 1.061 | 6000357937260927632BC | | Off Line | 2013-10-31 |

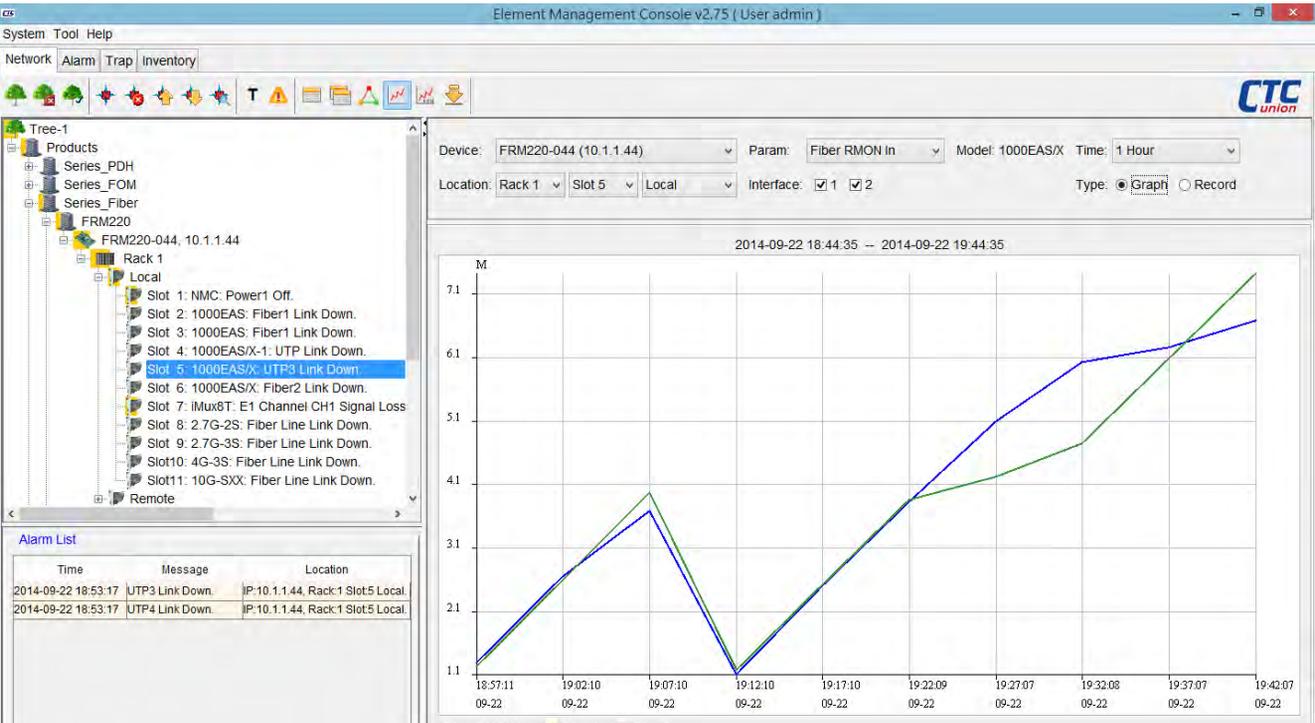
資產管理清單

| No. | Device | Type | On Line | Off Line | Total |
|-----|---------|------------|---------|----------|-------|
| 1 | FRM220 | NMC | 1 | 0 | 1 |
| 2 | | 1000M | 1 | 0 | 1 |
| 3 | | 1002ES | 1 | 0 | 1 |
| 4 | | 100IS_2 | 2 | 0 | 2 |
| 5 | | 100M | 2 | 0 | 2 |
| 6 | | 10GE_TS | 1 | 0 | 1 |
| 7 | | 10G_SXX | 1 | 0 | 1 |
| 8 | | 3R10G_SS | 1 | 0 | 1 |
| 9 | | 8E1ET100S | 2 | 0 | 2 |
| 10 | | EOE1G | 2 | 0 | 2 |
| 11 | | Protection | 1 | 0 | 1 |
| 12 | | | | | |
| 13 | | | | | |
| 14 | FRM220A | | | | |
| 15 | | 1000EASX | 0 | 4 | 4 |
| 16 | | 1002ES | 0 | 2 | 2 |
| 17 | | 16E1ET100T | 0 | 1 | 1 |
| 18 | | 5E1ET100S | 0 | 2 | 2 |
| 19 | | 5E1ET100T | 0 | 3 | 3 |
| 20 | | 8E1ET100S | 0 | 1 | 1 |
| 21 | | 8E1ET100T | 0 | 1 | 1 |
| 22 | | FSW103 | 0 | 1 | 1 |
| 23 | | | | | |

資產管理摘要

性能管理

SmartView™可監控網路裝置的性能參數。針對性能資訊(如 PDH ES、UAS 參數，以及風扇轉速、溫度、光纖發射/接收功率、RMON計數器等硬體參數)生成具有X軸與Y軸的圖表，顯示不同的趨勢資料。



性能圖表

The screenshot shows the 'Element Management Console v2.75 (User admin)' interface. The main area displays a performance record table for 'Fiber RMON In' on 'Interface 1' and '2' for '1 Hour'. The table lists 20 data points with columns for No., Device, Address, Type, Location, Time, Param, Interface, and Value. The Y-axis represents the value, ranging from 1.1 to 7.1. The table shows a significant peak around 19:07:10.

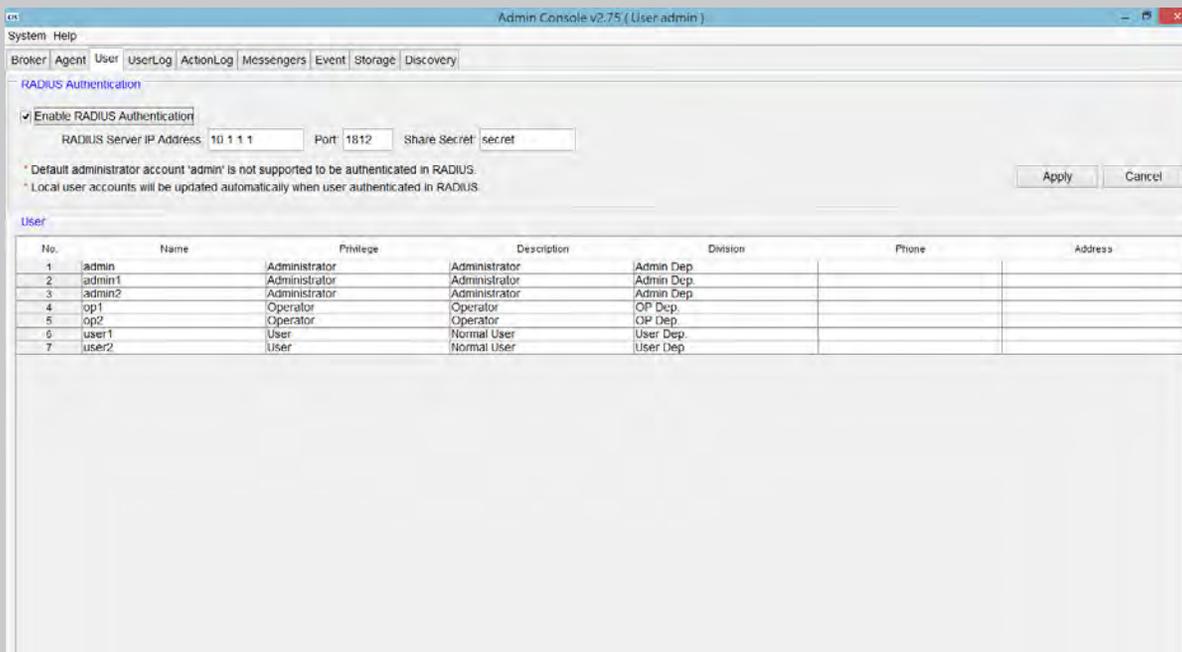
| No. | Device | Address | Type | Location | Time | Param | Interface | Value |
|-----|------------|-----------|--------|-----------------------|---------------------|---------------|-----------|---------|
| 1 | FRM220-044 | 10.1.1.44 | FRM220 | Rack:01 Slot:05 Local | 2014-09-22 18:57:11 | Fiber RMON In | 1 | 1331040 |
| 2 | FRM220-044 | 10.1.1.44 | FRM220 | Rack:01 Slot:05 Local | 2014-09-22 18:57:11 | Fiber RMON In | 2 | 1270944 |
| 3 | FRM220-044 | 10.1.1.44 | FRM220 | Rack:01 Slot:05 Local | 2014-09-22 19:02:10 | Fiber RMON In | 1 | 2677120 |
| 4 | FRM220-044 | 10.1.1.44 | FRM220 | Rack:01 Slot:05 Local | 2014-09-22 19:02:10 | Fiber RMON In | 2 | 2621536 |
| 5 | FRM220-044 | 10.1.1.44 | FRM220 | Rack:01 Slot:05 Local | 2014-09-22 19:07:10 | Fiber RMON In | 1 | 3711872 |
| 6 | FRM220-044 | 10.1.1.44 | FRM220 | Rack:01 Slot:05 Local | 2014-09-22 19:07:10 | Fiber RMON In | 2 | 4005216 |
| 7 | FRM220-044 | 10.1.1.44 | FRM220 | Rack:01 Slot:05 Local | 2014-09-22 19:12:10 | Fiber RMON In | 1 | 1132512 |
| 8 | FRM220-044 | 10.1.1.44 | FRM220 | Rack:01 Slot:05 Local | 2014-09-22 19:12:10 | Fiber RMON In | 2 | 1210720 |
| 9 | FRM220-044 | 10.1.1.44 | FRM220 | Rack:01 Slot:05 Local | 2014-09-22 19:17:10 | Fiber RMON In | 1 | 2538752 |
| 10 | FRM220-044 | 10.1.1.44 | FRM220 | Rack:01 Slot:05 Local | 2014-09-22 19:17:10 | Fiber RMON In | 2 | 2547776 |
| 11 | FRM220-044 | 10.1.1.44 | FRM220 | Rack:01 Slot:05 Local | 2014-09-22 19:22:09 | Fiber RMON In | 1 | 3869792 |
| 12 | FRM220-044 | 10.1.1.44 | FRM220 | Rack:01 Slot:05 Local | 2014-09-22 19:22:09 | Fiber RMON In | 2 | 3887840 |
| 13 | FRM220-044 | 10.1.1.44 | FRM220 | Rack:01 Slot:05 Local | 2014-09-22 19:27:07 | Fiber RMON In | 1 | 5125632 |
| 14 | FRM220-044 | 10.1.1.44 | FRM220 | Rack:01 Slot:05 Local | 2014-09-22 19:27:07 | Fiber RMON In | 2 | 4259328 |
| 15 | FRM220-044 | 10.1.1.44 | FRM220 | Rack:01 Slot:05 Local | 2014-09-22 19:32:08 | Fiber RMON In | 1 | 6058112 |
| 16 | FRM220-044 | 10.1.1.44 | FRM220 | Rack:01 Slot:05 Local | 2014-09-22 19:32:08 | Fiber RMON In | 2 | 4776704 |
| 17 | FRM220-044 | 10.1.1.44 | FRM220 | Rack:01 Slot:05 Local | 2014-09-22 19:37:07 | Fiber RMON In | 1 | 6298752 |
| 18 | FRM220-044 | 10.1.1.44 | FRM220 | Rack:01 Slot:05 Local | 2014-09-22 19:37:07 | Fiber RMON In | 2 | 6116768 |
| 19 | FRM220-044 | 10.1.1.44 | FRM220 | Rack:01 Slot:05 Local | 2014-09-22 19:42:07 | Fiber RMON In | 1 | 6715360 |
| 20 | FRM220-044 | 10.1.1.44 | FRM220 | Rack:01 Slot:05 Local | 2014-09-22 19:42:07 | Fiber RMON In | 2 | 7452320 |

性能紀錄

安全管理

使用者權限

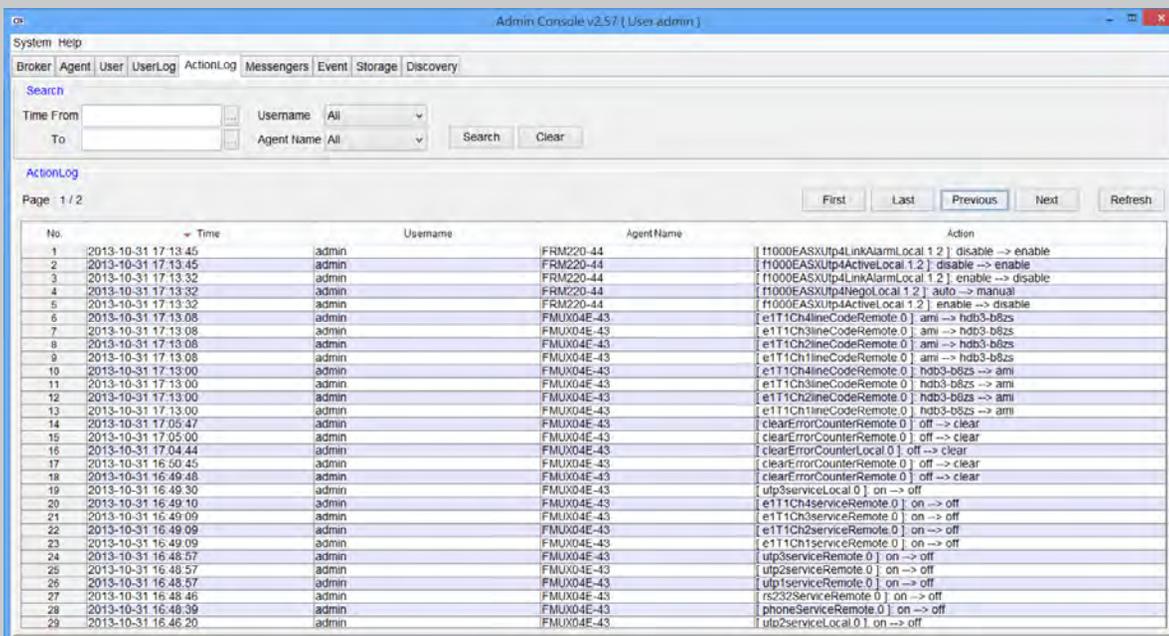
- 系統管理員可視需要新增具有特殊權限的使用者登入檔，使用者權限可分為系統管理員、操作員、一般使用者。
- Radius 驗證。可使用 RADIUS 伺服器所儲存的憑證進行驗證登入。



使用者權限

使用者操作

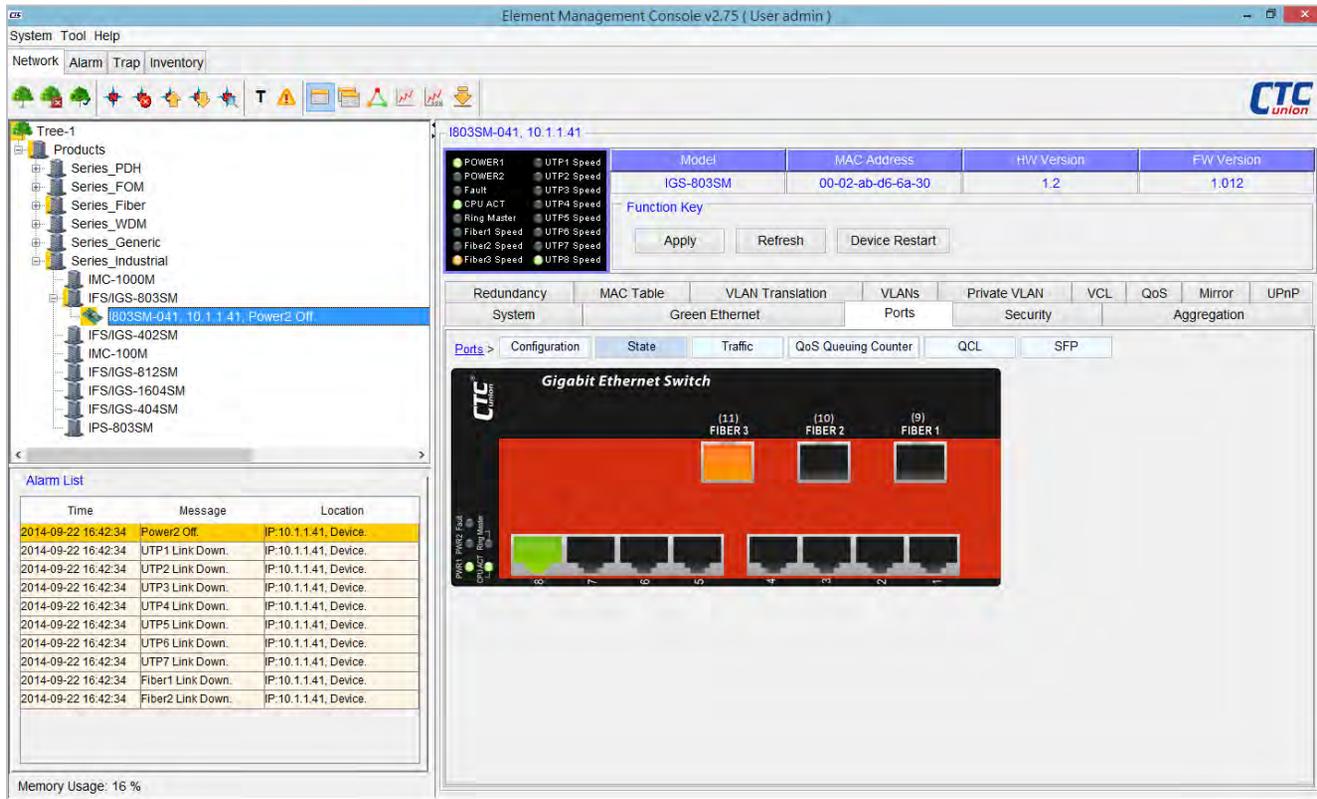
可檢視並清除使用者登入與配置操作紀錄。
將會記錄使用者客戶端的登入與登出資訊，包括客戶端來源IP位址。在網路裝置上進行的所有操作都將記錄下來，並含有時間戳記、操作者與變更項目。



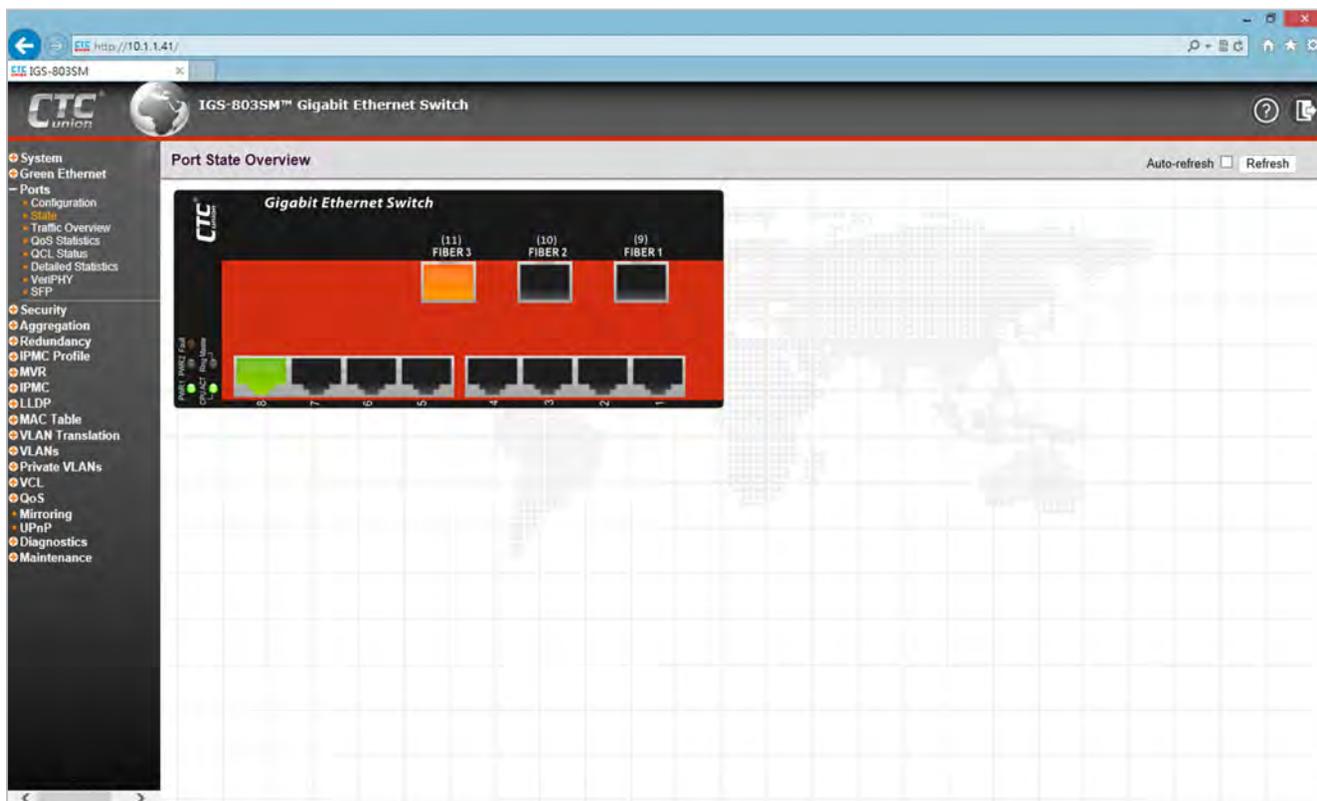
使用者操作

可管理的設備裝置

工業乙太網路網管型交換器與轉換器



EMS 使用者介面



Web 使用者介面

1 EMS SmartView™

需求配置

| SmartView™ | Hardware (minimum) | Software | Operating System |
|---------------------|------------------------------------------------------------|----------------------------------------------------|--------------------------------------------------|
| SmartView™ Server | Intel Core2 or higher processor, 4GB RAM, HD >2GB (free). | JAVA JRE, SmartView™ Kit. | Windows 2008/2012 Server, Windows Vista, Win 7/8 |
| SQL Database Server | Intel Core2 or higher processor, 4GB RAM, HD >2GB (free). | MS-SQL Server 2008/2012 | Windows 2008/2012 Server, Windows Vista, Win 7/8 |
| Workstation-Clients | Intel Core2 or higher processor, 4GB RAM, HD >2GB (free). | JAVA JRE, SmartView™ Kit. | Windows Vista, Win 7/8 |
| All-In-One | Intel Core2 or higher processor, 8GB RAM, HD >20GB (free). | JAVA JRE, MS-SQL Server 2008/2012, SmartView™ kit. | Windows 2008/2012 Server, Windows Vista, Win 7/8 |

支援工規產品清單

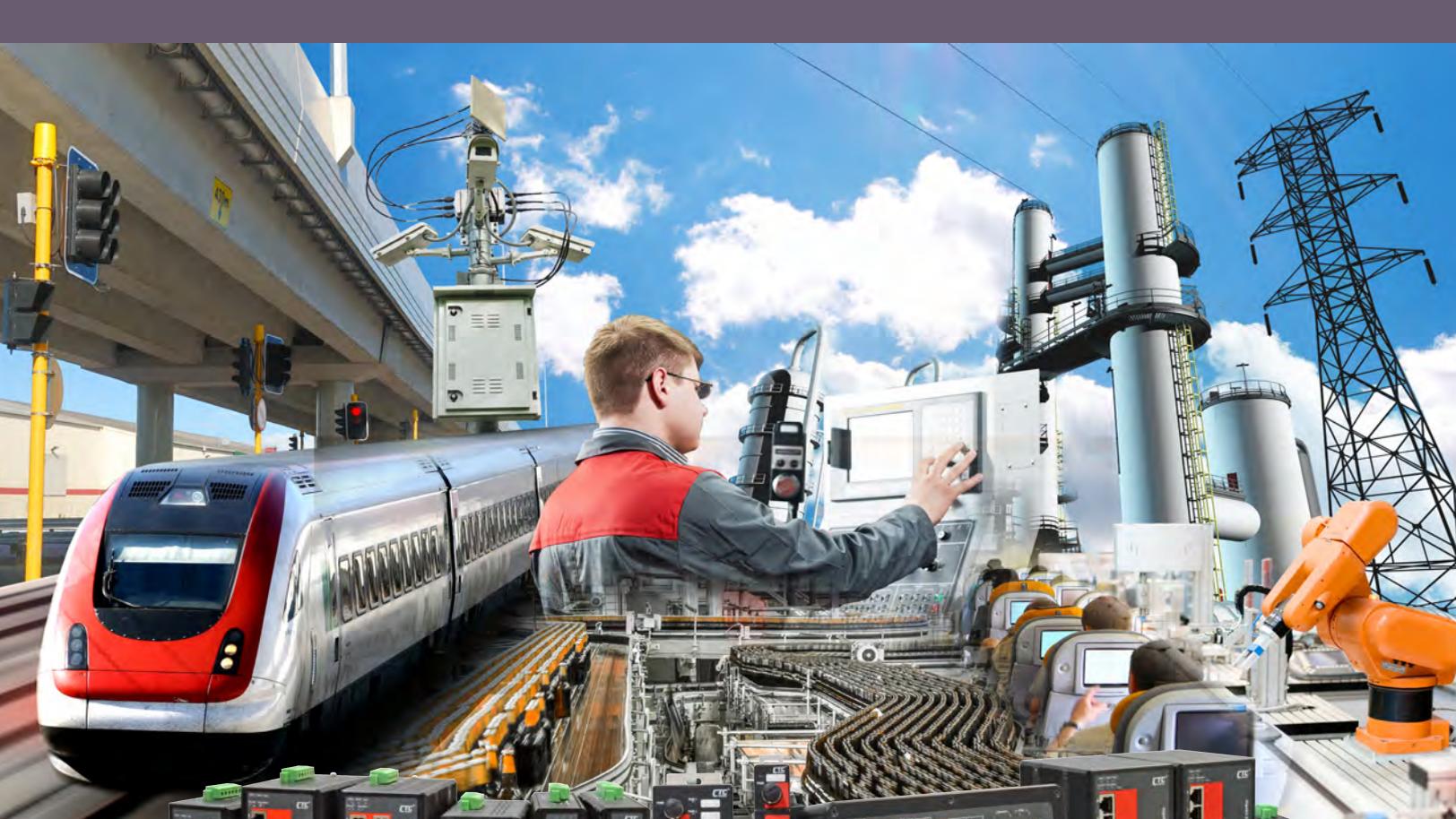
| Product Series | Model List |
|------------------------------------|---------------------------------------------------------------------------------------|
| Industrial Managed Ethernet Switch | IGS-404SM, IGS-803SM, IGS-812SM, IGS-1604SM, IFS-402GSM, IFS-803GSM, IFS-1604GSM |
| Industrial Managed PoE Switch | IGS-402SM-4PH24, IGS-803SM-8PH24, IFS-402GSM-4PH24, IFS-803GSM-8PH24 |
| Industrial Managed GbE Converter | IMC-1000M, IMC-1000MS, IMC-100M |
| Industrial Managed PoE Converter | IMC-1000M-PH12, IMC-1000MS-PH12, IMC-100M-PH12 |
| IEC61850-3 Ethernet Switch | IPS-G803SM, IPS-803GSM |
| EN50155 Ethernet Switch | ITP-G802SM, ITP-G800M, ITP-802GSM, ITP-802GTM, ITP-800M |
| EN50155 Ethernet Switch with PoE | ITP-G802SM-8PH24, ITP-G800M-8PH24, ITP-802GSM-8PH24, ITP-802GTM-8PH24, ITP-800M-8PH24 |
| Industrial Core Switch | ICS-24S4XM, ICS-24S2XM |

訂購資訊

SmartView™ Platform Server with Device Agents

| Model Name | Description |
|------------|--------------------------------------------|
| SV-AGT-50 | SmartView™ Platform with 50 device agents |
| SV-AGT-100 | SmartView™ Platform with 100 device agents |
| SV-AGT-200 | SmartView™ Platform with 200 device agents |
| SV-AGT-500 | SmartView™ Platform with 500 device agents |

SV - □□□□ - □□□□
 Example: SV - AGT - 100

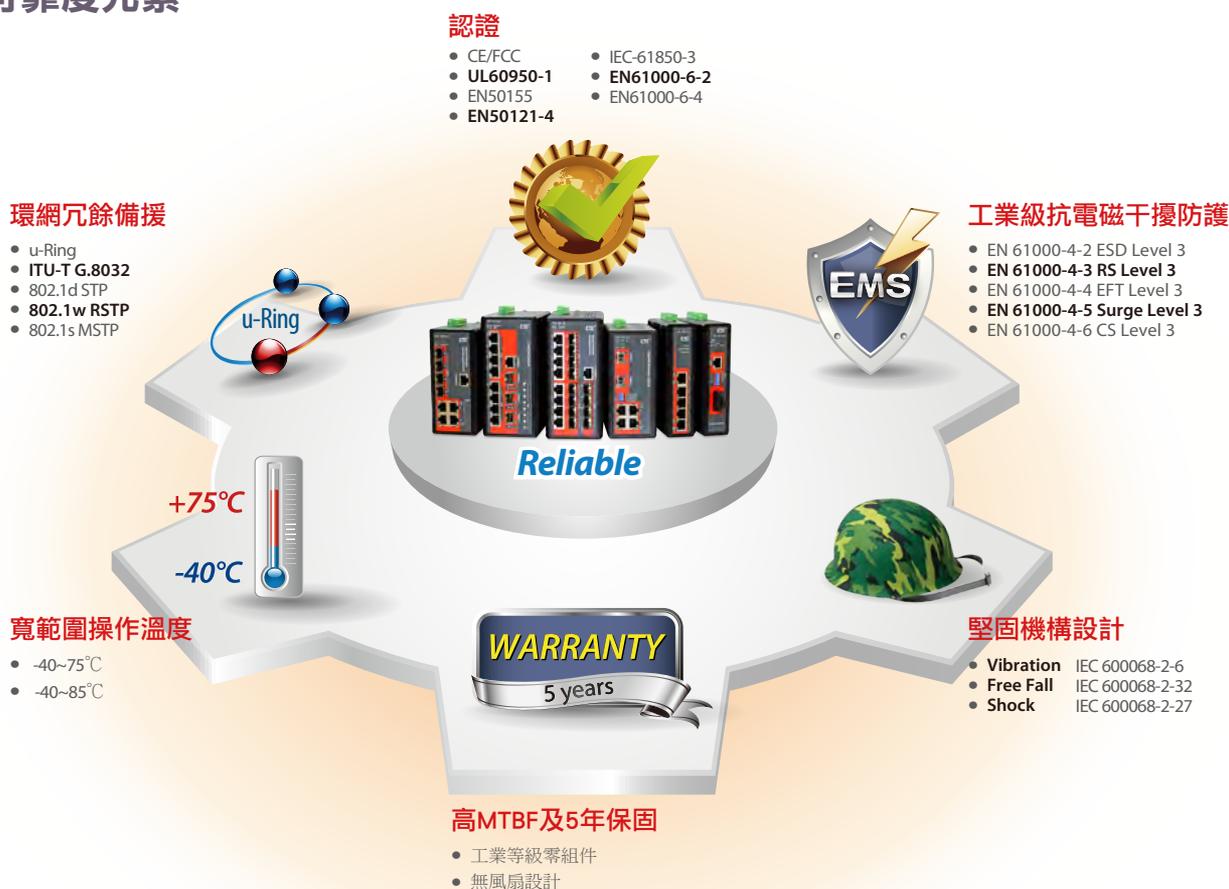


具有可靠度的工業乙太網路產品

- 通過各種工業等級認證標準
- SmartView™ 集中式的管理系統
- SmartConfig™ 快速方便，可進行大量設定
- 最方便及彈性的 u-Ring 環形網路備援功能
- 支援 IEEE1588v2 PTP 精準時序協定
- 堅固和無風扇設計，以及寬範圍操作溫度 (-40~75°C)
- 5 年保固及高 MTBF 值

CTC Union 設計製造的工業級乙太網路產品，可為自動化系統、安全監控、鐵路運輸、變電站等應用環境提供高效能及可靠度的解決方案。這些產品均通過嚴格的測試與國際認證，包含通過UL60950-1 安全性標準、軌道交通EN 50121-4及EN 50155認證、重工業環境EN61000-6-2及EN61000-6-4標準認證和變電站IEC 61850-3 標準認證。CTC Union的工業級乙太網路產品具有適於高寬溫操作環境、IP30堅固機構的外殼設計特性，可為在嚴苛環境中所實施的應用專案提供更穩定及可靠的服務。CTC Union 提供SmartView™集中式管理平台、易用且富彈性的u-Ring備援和即時警報通知等功能，都使CTC Union 的工業級乙太網路產品在連接客戶的網路裝置時更具彈性，並提供5年的產品保固服務。

可靠度元素



重要認證



CTC Union 的工業用網路產品已通過 UL 列名及認證。通過 UL 認證的產品能降低操作人員、非專業人員或維修人員的觸電、火災風險、能源相關危險、熱相關危險、機械危險、輻射和化學危險。



軌道旁和鐵路應用

CTC Union 的工業用網路產品已通過 EN50121-4 EMC (電磁相容性標準) 關於抗擾性及放射的認證，以及 EMS (電抗電磁干擾防護) 關於 Surge、EFT、ESD 規定和其他規定的認證。



重工業乙太網應用

CTC Union 的工業用網路產品已通過 EN61000-6-2 及 EN61000-6-4 關於重工業環境的抗擾性及放射，以及 EMS (抗電磁干擾防護) 關於 Surge、EFT、ESD 規定和其他規定的認證。



變電站應用

CTC Union 的工業用網路產品已通過 IEC 61850-3 標準的認證，其符合 EMC (電磁相容性標準) 規定以及 EMS (電抗電磁干擾防護) 規定，合乎 Surge、EFT、ESD 規定和其他規定。



鐵路、公車及移動式機械等應用

CTC Union 的工業用網路產品已通過 EN50155 標準的認證，其符合 EMC (電磁相容性標準) 規定與 EMS (抗電磁干擾防護) 規定，合乎 Surge、EFT、ESD 規定，以及其他規定。這些裝置也能抵抗各種環境干擾，包括振動及撞擊變化。

CE及EN50121-4軌道旁相容標準的比較

與一般CE相容產品相比，EN50121-4符合多項更嚴格標準，包括EMC、振動及電源。針對軌道旁的應用，Surge、EFT、ESD等防護十分重要。請參見下表，以一般CE和EN50121-4(軌道旁)測試等級之間的比較結果：

| | CE Compliant | EN50121-4 Compliant (Trackside) |
|--------------------------------|-----------------|---------------------------------|
| Surge | | |
| Signal L-E | 1kV | 2kV |
| Signal L-L | N/A | 2kV |
| DC Power L-E | 0.5kV | 2kV |
| DC Power L-L | 0.5kV | 2kV |
| ESD (Contact) | 4kV | 6kV |
| Radio frequency magnetic field | 10V/m | 20V/m |
| EFT (fast transient) | 1kV Criteria B* | 2kV Criteria A* |
| Power magnetic field | 10 A/meter | 300 A/meter |
| Pulse magnetic field | N/A | 300 A/meter |

* Criteria A: 在測試時,設備能正常傳輸,不受影響

* Criteria B: 在測試時,設備會受影響,但能自動回復正常

透過集中式SmartView™進行管理

Smartview™ 是一個集中式的網路管理平台：

1. 視覺化方式呈現相連裝置的狀況
2. 遠端存取多部成員裝置，
3. 可管理裝置及升級韌體
4. 具備故障管理、組態設定管理、計量管理、效能管理和安全性管理功能。



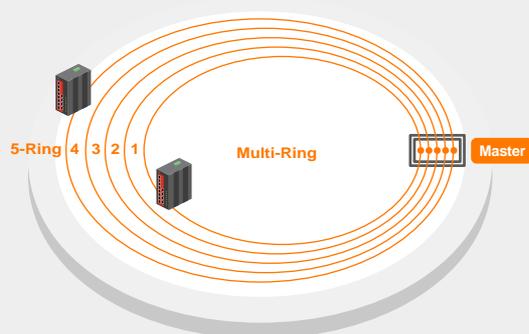
SmartConfig™快速方便，可進行大量設定

1. 方便且直觀式的網路設定工具
2. 能讓使用者同時存取多台CTC Union工業網路設備，以執行多台設備的設定作業，省去一台一台設定的費時及麻煩。
3. SmartConfig™提供的功能包括：帳戶管理、Auto Discovery、自動分組/建立/修改群組、裝置設定、u-Ring環網設定、IP位址設定、群組韌體升級、匯出/匯入組態設定、連線測試等。

最方便且最彈性化u-Ring環形網路備援功能

u-Ring 是CTC Union開發的專屬環網備援協定

1. 非常快速的備援回復時間 < 10ms
2. 可提供最多 5 環的彈性設定
3. 同一個環,最多可安裝 250台設備
4. 三種環型結構 (u-Ring、u-Chain、sub-Ring),能在使用者建構其環形網路時，針對各種不同的網路應用提供最佳的彈性。
5. 設定頁面極為方便使用且易於操作。(參見下圖設定圖)



u-Ring 功能設定

| 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"/> |

方便又容易設定的 u-Ring 功能設定 Web 畫面



■ 支援標準 ITU G.8032、IEEE 802.1W RSTP、IEEE 802.1s MSTP

除了 CTC Union 專屬 u-Ring 環網備援協定之外，也支援 ITU G.8032 RSTP 和 MSTP 等標準環網備援協定。在標準備援協定中，ITU G.8032 能達成最快速的還原時間 (<50ms)



■ 支援 IEEE 1588v2 PTP

IEEE 1588v2 PTP (精準時序協定) 功能可提供接收及傳輸訊框的時間戳記，以同步化網路內所有時鐘的時間。

1. 每個端口皆提供主裝置 (Master)、從裝置 (Slave) 和 Boundary 模式
2. 小於微秒誤差範圍的同步精確性



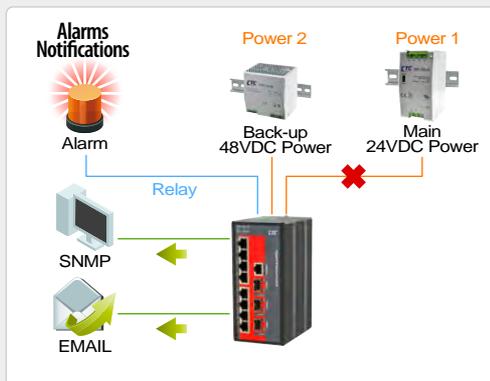
■ 5年保固及高MTBF值

1. 嚴格挑選各種工業級的零件，例如 工業級 IC、PCB、變壓器、特殊螺絲，牢固的散熱片固定方式，堅固的機體設計 ... 等。
2. 高 MTBF 值 (高使用壽命)
3. 設計通過符合各種法規 EMC (電磁相容)，EMS (抗電磁干擾防護)，並取得認證
4. 高標準的可靠性驗證，同時也在我們的工廠中採取各種嚴格的品質測試
5. 5 年的產品保固

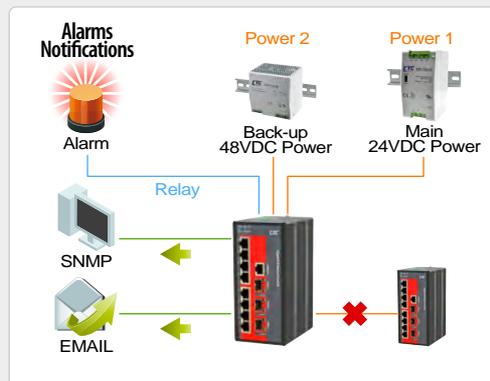
■ 多樣化且即時的警報通知

提供多種警報通知方式，當自動偵測到故障時，可回應特定的異常事件。

1. 寄送電子郵件告警
2. 端子台上的警報繼電器 (Relay)



電源故障時的告警



通訊埠口斷訊

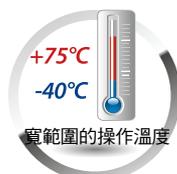
■ 堅固和無風扇設計，以及寬範圍操作溫度



堅固的設計



無風扇



寬範圍的操作溫度

1. 無風扇設計
2. 堅固的金屬外殼設計，能夠承受極端和快速變化的外在條件：例如撞擊、振動等。
3. 寬範圍 (-40°C~75°C) 的操作溫度
非常適合用於嚴酷的環境：例如：交通、鐵路、道路、工廠、倉庫、碼頭、停車場、電線桿及變電站 ... 等。

■ IP67等級和M12接頭

1. 配備M12接頭，能夠抵抗振動、撞擊、極端溫度和溼度
2. IP67防水防塵等級設計，能提供防塵、防油及防浸水的保護
3. 專為火車、汽車、水廠、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。



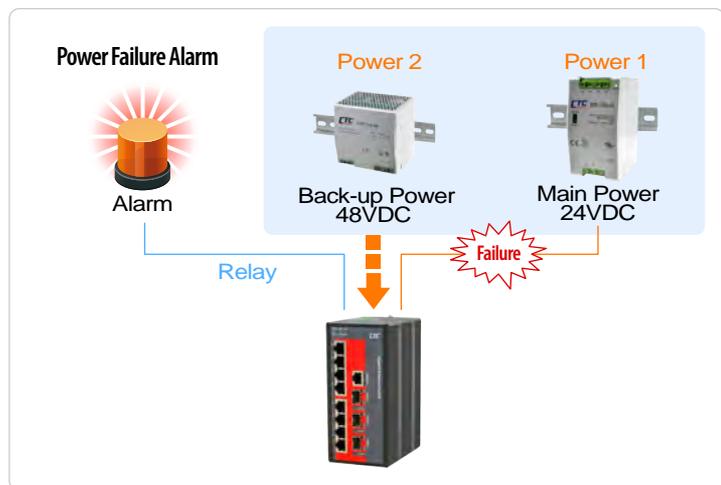
防水



防震

■ 冗餘備援及寬範圍電壓電源輸入

1. 使用方便安裝的可拆式端子台
2. 提供兩組冗餘備援輸入電源
3. 寬電壓範圍的DC輸入電源(12/24/48VDC)
備援電源供應器就會在主電源供應器故障時接手，保障設備不至於因為其中一組電源故障而停機。



■ IEEE 802.3az 綠能節電



1. 符合IEEE 802.3az綠能標準
2. 埠口於閒置狀態時自動降低用電量
3. 依據纜線長度調整用電量

■ 纜線診斷



此功能可以偵測纜線長度以及故障位置(短路或斷路)的距離。纜線診斷功能對乙太網佈線問題的疑難排解極為實用，特別是深埋或隱沒在地底下的乙太網纜線。

工規產品一覽表



工業級10G骨幹交換器

| 型號 | 管理 | 總埠數 | GbE Port | | 10GbE | 輸入電壓 | | 認證 | | | |
|---------------|----|-----|---------------------|----------------------------------------------|-------------------|---------------------------------|----------------------------|--------------|----------------|-------------------------|--------|
| | | | 100/1000 Base-X SFP | 10/100/1000 Base-T UTP or 100/1000Base-X SFP | IEEE 802.3ae SFP+ | DC (Low Volt) isolated 24/48VDC | AC (High Volt) 110/240V AC | 安全 UL60950-1 | 鐵道交通 EN50121-4 | EN61000-6-2 EN61000-6-4 | CE FCC |
| ICS-G24S4X-AA | V | 28 | 20 | 4 Combo | 4 | | 2 | V | V | V | V |
| ICS-G24S4X-DD | V | 28 | 20 | 4 Combo | 4 | 1 | 1 | V | V | V | V |
| ICS-G24S4X-AD | V | 28 | 20 | 4 Combo | 4 | 2 | | V | V | V | V |
| ICS-G24S2X-AA | V | 26 | 20 | 4 Combo | 2 | | 2 | V | V | V | V |
| ICS-G24S2X-DD | V | 26 | 20 | 4 Combo | 2 | 1 | 1 | V | V | V | V |
| ICS-G24S2X-AD | V | 26 | 20 | 4 Combo | 2 | 2 | | V | V | V | V |

EN 50155 乙太網交換器

| 型號 | 管理 | IP67 | 總埠數 | UTP M12 | | 光纖 | PoE埠 IEEE802.3at | 認證 | | | | | 防震 |
|------------------|----|------|-----|----------------|--------------------|---------------------------|------------------|---------|----------------|--------------|-------------------------|--------|----------|
| | | | | 10/100 Base-TX | 10/100/1000 Base-T | Dual Speed 100/1000Base-X | | EN50155 | 鐵道交通 EN50121-4 | 安全 UL60950-1 | EN61000-6-2 EN61000-6-4 | CE FCC | IEC61373 |
| ITP-500 | | ✓ | 5 | 5 | | | | ✓ | ✓ | | ✓ | ✓ | ✓ |
| ITP-800 | | ✓ | 8 | 8 | | | | ✓ | ✓ | | ✓ | ✓ | ✓ |
| ITP-800M | ✓ | ✓ | 8 | 8 | | | | ✓ | ✓ | Plan | ✓ | ✓ | ✓ |
| ITP-802GTM | ✓ | ✓ | 10 | 8 | 2 | | | ✓ | ✓ | Plan | ✓ | ✓ | ✓ |
| ITP-802GSM | ✓ | ✓ | 10 | 8 | | 2 SFP | | ✓ | ✓ | Plan | ✓ | ✓ | ✓ |
| ITP-G800M | ✓ | ✓ | 8 | | 8 | | | ✓ | ✓ | Plan | ✓ | ✓ | ✓ |
| ITP-G802SM | ✓ | ✓ | 10 | | 8 | 2 SFP | | ✓ | ✓ | Plan | ✓ | ✓ | ✓ |
| ITP-800M-8PH24 | ✓ | ✓ | 8 | 8 | | | 8 | ✓ | ✓ | Plan | ✓ | ✓ | ✓ |
| ITP-802GTM-8PH24 | ✓ | ✓ | 10 | 8 | 2 | | 8 | ✓ | ✓ | Plan | ✓ | ✓ | ✓ |
| ITP-802GSM-8PH24 | ✓ | ✓ | 10 | 8 | | 2 SFP | 8 | ✓ | ✓ | Plan | ✓ | ✓ | ✓ |
| ITP-G802SM-8PH24 | ✓ | ✓ | 10 | | 8 | 2 SFP | 8 | ✓ | ✓ | Plan | ✓ | ✓ | ✓ |
| ITP-G800M-8PH24 | ✓ | ✓ | 8 | | 8 | | 8 | ✓ | ✓ | Plan | ✓ | ✓ | ✓ |

IEC61850-3 乙太網交換器

| 型號 | 管理 | 總埠數 | UTP | | 光纖 | 認證 | | | |
|------------|----|-----|----------------|--------------------|---------------------------|-----------------|--------------|----------------|---------|
| | | | 10/100 Base-TX | 10/100/1000 Base-T | Dual Speed 100/1000Base-X | 變電站 IEC-61850-3 | 安全 UL60950-1 | 鐵道交通 EN50121-4 | CE, FCC |
| IPS-G803SM | ✓ | ✓ | | 8 | 3 SFP | ✓ | ✓ | ✓ | ✓ |
| IPS-803GSM | ✓ | ✓ | 8 | | 3 SFP | ✓ | ✓ | ✓ | ✓ |

工業級PoE乙太網交換器

| 型號 | 管理 | 總埠數 | UTP | | 光纖 | PoE埠 IEEE802.3at | 認證 | | | |
|------------------|----|-----|----------------|--------------------|------------|------------------|---------------------------|----------------|--------------|-------------------------|
| | | | 10/100 Base-TX | 10/100/1000 Base-T | 1000Base-X | | Dual Speed 100/1000Base-X | 鐵道交通 EN50121-4 | 安全 UL60950-1 | EN61000-6-2 EN61000-6-4 |
| IGS-600-4PH24 | | 6 | | 6 | | 4 | ✓ | ✓ | ✓ | ✓ |
| IGS-401F-4PH24 | | 5 | | 4 | 1 SC | 4 | ✓ | ✓ | ✓ | ✓ |
| IGS-402F-4PH24 | | 6 | | 4 | 2 SC | 4 | ✓ | ✓ | ✓ | ✓ |
| IGS-402S-4PH24 | | 6 | | 4 | | 2 SFP | 4 | ✓ | ✓ | ✓ |
| IFS-402GSM-4PH24 | ✓ | 6 | 4 | | | 2 SFP | 4 | ✓ | ✓ | ✓ |
| IFS-803GSM-8PH24 | ✓ | 11 | 8 | | | 3 SFP | 8 | ✓ | ✓ | ✓ |
| IGS-803SM-8PH24 | ✓ | 11 | | 8 | | 3 SFP | 8 | ✓ | ✓ | ✓ |
| IGS-402SM-4PH24 | ✓ | 6 | | 4 | | 2 SFP | 4 | ✓ | ✓ | ✓ |

工業級乙太網轉換器(PoE 內置)

| 型號 | 管理 | UTP | | 光纖 | PoE埠 | | 輸入電壓 (Boost) | 認證 | | | |
|-----------------|----|----------------|--------------------|-------------|---------------------------|-----------------------|--------------|--------------|----------------|-------------------------|--------|
| | | 10/100 Base-TX | 10/100/1000 Base-T | 100 Base-FX | Dual Speed 100/1000Base-X | IEEE802.3 at/af (PSE) | | Power Budget | 鐵道交通 EN50121-4 | EN61000-6-2 EN61000-6-4 | CE FCC |
| IMC-1000-PH12 | | | 1 | | 1 SC | 1 | 30W | 12/24/48VDC | ✓ | ✓ | ✓ |
| IMC-1000S-PH12 | | | 1 | | 1 SFP | 1 | 30W | 12/24/48VDC | ✓ | ✓ | ✓ |
| IMC-100-PH12 | | 1 | | | 1 SC/ST | 1 | 30W | 12/24/48VDC | ✓ | ✓ | ✓ |
| IMC-1000M-PH12 | ✓ | | 1 | | 1 SC | 1 | 30W | 12/24/48VDC | ✓ | ✓ | ✓ |
| IMC-1000MS-PH12 | ✓ | | 1 | | 1 SFP | 1 | 30W | 12/24/48VDC | ✓ | ✓ | ✓ |
| IMC-100M-PH12 | ✓ | 1 | | | 1 SC/ST | 1 | 30W | 12/24/48VDC | ✓ | ✓ | ✓ |



工業級Gigabit Injector

| 型號 | Network | PoE埠 | | 輸入電壓 | 認證 | | |
|-------------|--------------------------|------------------------|-----------------|--------------------|----------------|-------------------------|---------|
| | 10/100/1000 Base-T (UTP) | IEEE802.3 at/laf (PSE) | Power Budget | | 鐵道交通 EN50121-4 | EN61000-6-2 EN61000-6-4 | CE, FCC |
| INJ-IG60-24 | 1 | 1 | 15/30/36/60/72W | "24/48VDC (Boost)" | ✓ | ✓ | ✓ |
| INJ-IG01-PH | 1 | 1 | 15/30/60W | 48VDC | ✓ | ✓ | ✓ |

工業級PoE延長器

| 型號 | UTP | Long Distance | | PoE埠 IEEE802.3at | 認證 | | | |
|-------------|--------|---------------|---------|------------------|----------------|--------------|-------------------------|---------|
| | 10/100 | RJ11 | Coaxial | | 鐵道交通 EN50121-4 | 安全 UL60950-1 | EN61000-6-2 EN61000-6-4 | CE, FCC |
| IEXT224-4PH | 4 | 1 | 1 | 24/48VDC | ✓ | ✓ | ✓ | ✓ |
| IEXT204-4PH | 4 | 1 | | 48VDC | ✓ | ✓ | ✓ | ✓ |

工業級乙太網交換器

| 型號 | 管理 | 總埠數 | UTP | | 光纖 | | | 認證 | | | | |
|-------------|----|-----|----------------|--------------------|------------|------------|---------------------------|----------------|--------------|-------------------------|--------|---|
| | | | 10/100 Base-TX | 10/100/1000 Base-T | 100Base-FX | 1000Base-X | Dual Speed 100/1000Base-X | 鐵道交通 EN50121-4 | 安全 UL60950-1 | EN61000-6-2 EN61000-6-4 | CE FCC | |
| IFS-500 | | 5 | 5 | | | | | | ✓ | | ✓ | ✓ |
| IFS-800 | | 8 | 8 | | | | | | ✓ | | ✓ | ✓ |
| IFS-401F | | 5 | 4 | | 1 SC/ST | | | | ✓ | | ✓ | ✓ |
| IFS-402F | | 6 | 4 | | 2 SC/ST | | | | ✓ | | ✓ | ✓ |
| IFS-500C | | 5 | 5 | | | | | | ✓ | | ✓ | ✓ |
| IGS-500 | | 5 | | 5 | | | | | ✓ | | ✓ | ✓ |
| IGS-501S | | 6 | | 5 | | | 1 SFP | | ✓ | | ✓ | ✓ |
| IGS-800 | | 8 | | 8 | | | | | ✓ | | ✓ | ✓ |
| IGS-401F | | 5 | | 4 | | 1 SC | | | ✓ | ✓ | ✓ | ✓ |
| IGS-402F | | 6 | | 4 | | 2 SC | | | ✓ | ✓ | ✓ | ✓ |
| IGS-402S | | 6 | | 4 | | | | 2 SFP | ✓ | ✓ | ✓ | ✓ |
| IFS-402GSM | ✓ | 6 | 4 | | | | | 2 SFP | ✓ | ✓ | ✓ | ✓ |
| IFS-803GSM | ✓ | 11 | 8 | | | | | 3 SFP | ✓ | ✓ | ✓ | ✓ |
| IFS-1604GSM | ✓ | 20 | 16 | | | | | 4 SFP | ✓ | ✓ | ✓ | ✓ |
| IGS-404SM | ✓ | 8 | | 4 | | | | 4 SFP | ✓ | ✓ | ✓ | ✓ |
| IGS-803SM | ✓ | 11 | | 8 | | | | 3 SFP | ✓ | ✓ | ✓ | ✓ |
| IGS-812SM | ✓ | 20 | | 8 | | | | 12 SFP | ✓ | ✓ | ✓ | ✓ |
| IGS-1604SM | ✓ | 20 | | 16 | | | | 4 SFP | ✓ | ✓ | ✓ | ✓ |

工業級乙太網轉換器

| 型號 | 管理 | UTP | | 光纖 | | | 認證 | | | | | |
|------------|----|----------------|--------------------|------------|------------|---------------------------|----------------|--------------|-------------------------|--------|---|---|
| | | 10/100 Base-TX | 10/100/1000 Base-T | 100Base-FX | 1000Base-X | Dual Speed 100/1000Base-X | 鐵道交通 EN50121-4 | 安全 UL60950-1 | EN61000-6-2 EN61000-6-4 | CE FCC | | |
| IMC-100C | | 1 | | 1 SC/ST | | | | | ✓ | | ✓ | ✓ |
| IMC-100 | | 1 | | 1 SC/ST | | | | | ✓ | ✓ | ✓ | ✓ |
| IMC-1000C | | | 1 | | 1 SC | | | | ✓ | | ✓ | ✓ |
| IMC-1000 | | | 1 | | | 1 SC | | | ✓ | ✓ | ✓ | ✓ |
| IMC-1000CS | | | 1 | | | 1 SFP | | | ✓ | | ✓ | ✓ |
| IMC-1000S | | | 1 | | | 1 SFP | | | ✓ | ✓ | ✓ | ✓ |
| IMC-1000MS | ✓ | | 1 | | | 1 SFP | | | ✓ | ✓ | ✓ | ✓ |
| IMC-1000M | ✓ | | 1 | | | 1 SC | | | ✓ | ✓ | ✓ | ✓ |
| IMC-100M | ✓ | 1 | | 1 SC/ST | | | | | ✓ | ✓ | ✓ | ✓ |

序列介面光纖轉換器

| 型號 | Dual Channel | Serial | | | Fiber | | 認證 | | | |
|------------|--------------|--------|-----------|-----------------|-------|-------------|--------------|-------------------------|----|-----|
| | | RS232 | RS422/485 | Isolation 2.5KV | SC/ST | Daisy Chain | 安全 UL60950-1 | EN61000-6-2 EN61000-6-4 | CE | FCC |
| IFC-FDC | ✓ | 2 | 1 | ✓ | 2 | ✓ | ✓ | ✓ | ✓ | ✓ |
| IFC-Serial | ✓ | 2 | 1 | ✓ | 1 | ✓ | ✓ | ✓ | ✓ | ✓ |

Ethernet Device Servers

| 型號 | LAN UTP Port | | WAN Port | | 認證 |
|----------------|---------------|--|----------|---------------|---------|
| | 10/100Base-TX | | RS-232 | RS232/422/485 | CE, FCC |
| STE100A-232 | ✓ | | ✓ | | ✓ |
| STE100A-Serial | ✓ | | | ✓ | ✓ |



ICS-G24S4X

24x 100/1000Base-X SFP with 4xGbE Combo plus 4x 10GbE SFP+ Core Switch

ICS-G24S2X

24x 100/1000Base-X SFP with 4xGbE Combo plus 2x 10GbE SFP+ Core Switch

ICS-G24S4X及ICS-G24S2X為配備24個千兆SFP端口及4個Combo端口，外加2個或4個10G SFP+端口的乙太網核心交換器。此系列機型皆為無風扇並配備備援隔離式電源供應器(2組交流電、2組隔離式直流電，或交流電 + 隔離式直流電)，可裝設於19吋的標準機架中。它們不僅能提供各種不同的第2層管理功能(IGMP、VLAN、QoS、安全性、IPv6、頻寬控制、端口鏡射、纜線診斷和節能乙太網)，也支援u-Ring 備援環網，u-Ring 最多可建立14個備援環網以供彈性應用，尤其適合應用在骨幹基礎架構中。此系列交換器也可使用CTC Union的SmartView™ Element Management System來進行集中式便利管理，並提供SmartConfig™輔助進行大量設備的方便及快速設定。

此系列產品位於堅固的裝設機箱內，並符合多項工業級標準，極為適合部署在嚴苛的環境中，以執行關鍵任務的網路服務，是適合核心層或骨幹應用的解決方案，同時具備可靠性及可擴充性。

功能特色

- 24 個 100/1000Base-X SFP 及 4 個 Combo (SFP+RJ-45) 和 4 個 10GBase-X SFP+ (ICS-G24S4X)
- 24 個 100/1000Base-X SFP 及 4 個 Combo (SFP+RJ-45) 和 2 個 10GBase-X SFP+ (ICS-G24S2X)
- 通過 UL60950-1、CE、FCC、鐵道交通 EN50121-4 認證
- 隔離式 DC 電壓 24/48VDC 冗餘備援，或 / 和 AC 電源輸入 (110/220 VAC)
- 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
- STP、RSTP、MSTP、ITU-T G.8032 Ethernet Ring Protection Switching (ERPS) for redundant cabling
- 每台設備可支援 u-Ring，u-Chain 或 Sub-Ring 型態的環網 (圖 3)，一台設備最多可設 14 個環網 (圖 1)
- 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
- 安全管制功能：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
- 支援 RMON、MIB II、Private MIB、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，以方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 |
| | IEEE802.3ae | 10 Gbit/s Ethernet over fiber |
| | 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 | Ether (Energy Efficient Ethernet) |
| VLAN ID | 4094 | IEEE802.1Q VLAN VID |

| | |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 交換架構 | Back-plane (Switching Fabric): 128Gbps (ICS-24S4XM) 88Gbps (ICS-24S2XM) |
| Data Processing | Store and Forward |
| Flow Control | IEEE 802.3x for 全雙工模式 Back pressure for 半雙工模式 |
| 網路連接器 | 24個 100/1000Base-X SFP 和 4個 GbE Combo (UTP/SFP)+ 4個10GBase-X SFP+ (ICS-24S4XM) 24個100/1000Base-X SFP和4個GbE Combo (UTP/SFP)+ 2個10GBase-X SFP+ (ICS-24S2XM) RJ-45 UTP 端口，支援 10/100/1000Base-T(X)，Auto negotiation speed,自動MDI/MDI-X 功能 GbE port SFP 支援雙速度 (100M/1000M) with DDMI 10GbE port SFP+ 支援雙速度 (1000M/10G) with DDMI |
| Console | RS-232 (RJ-45) |
| 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 |
| 電源輸入 | 配備2個隔離式DC輸入冗餘備援電源 (-LL model) 配備1個隔離式DC輸入及1個AC輸入 冗餘備援電源 (-HL model) 配備2個AC輸入冗餘備援電源(-HH model) 隔離式 DC 輸入：隔離式24/48V (18~60VDC)，可拔插式配接器 AC 輸入：110/240VAC (88VAC~264VAC) |
| 耗電量 | TBD |

| | |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LED指示燈 | Power 1 (綠), Power 2 (綠), Act /Fault (綠/紅), Ring Master (綠) 每RJ-45端口: 10/100 Link/Active(綠), 1000 Link/Active(黃) SFP (P1~24) 每光纖端口: 100Base-X Link/Active (綠),1000Base-X Link/Active (黃) SFP+ (P25~P28) 每光纖端口: 1000Base-X Link/Active (琥珀色), 10GBase-X Link/Active (藍) |
| Jumbo Frame | 10K |
| MAC Address Table | 32K |
| Memory Buffer | 4M Bytes for packet buffer |
| 告警訊息 | System Syslog, SMTP/ e-mail event message, alarm relay |
| 告警繼電器規格 | Relay outputs with current carrying capacity of 1 A @24VDC, 2Pin 可插拔式配接器 |
| 工作溫度 | -10 ~ 60°C |
| 工作濕度 | 5% to 95% (無冷凝) |
| 儲存溫度 | -40 ~ 85°C |
| 外殼 | 金屬外殼、IP30防護、無風扇 |
| 尺寸 | 315 x 440 x 44 mm (D x W x H) |
| 重量 | TBD |
| 安裝方式 | 19" rack mount |
| MTBF | TBD |
| 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 | 每台設備可支援u-Ring, u-Chain 或Sub-Ring 型態的環網, 一台設備最多可設14 個環網 u-Ring 冗餘以太網環網, 在最多 250 個裝置時,恢復時間 <10ms |
| Loop Protection | 提供 |
| 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 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 : 100Kbps Range : 100 kbps to 1Gbps / 1fps to 3300kfps 單位 : bit or frame |
| Bandwidth Control for Egress | Rate in steps : 100Kbps Range : 100 kbps to 1Gbps 單位 : bit Per queue / Per port shaper |
| DiffServ (RF 2474) Remarkings | |
| Storm Control | for Unicast, Broadcast, Multicast |
| IP多點特色 | |
| IGMP / MLD Snooping | IGMP Snooping v1, v2, v3 / MLD Snooping v1, v2 Port Filtering Profile Throttling, Fast Leave Maximum Multicast Group : up to 1022 entries Query / Static Router Port |

| | |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 認證 | |
| EMC | CE |
| EMI (Electromagnetic Interference) | FCC Part 15 Subpart B Class A, CE EN55022 Class A |
| 軌道交通 | 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 |
| 防撞擊 | IEC 60068-2-27 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC 60068-2-6 |

| | |
|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 安全性 | |
| 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 Management | Local Authentication Remote Authentication(透過 RADIUS / TACACS+) |
| Interface Access Filtering | Web, Telnet / SSH , CLI RS-232 console |
| 網管特色 | |
| 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 | RFC1213 MIB II, Private MIB |
| DHCP | Client, Relay, Snooping Snooping option 82 Relay option 82 |
| IP Source Guard | |
| Port Mirroring | |
| Event Syslog | Syslog server (RFC3164) (Support 1 server) |
| 告警訊息 | 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 管理 | 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 |

應用圖

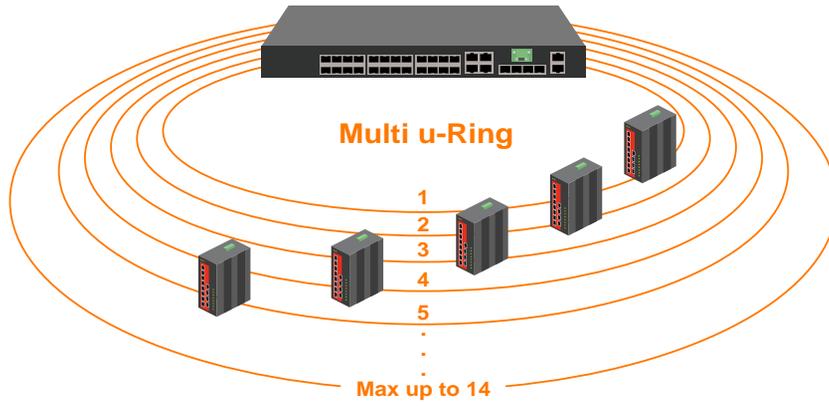


圖1：Multiple u-Ring

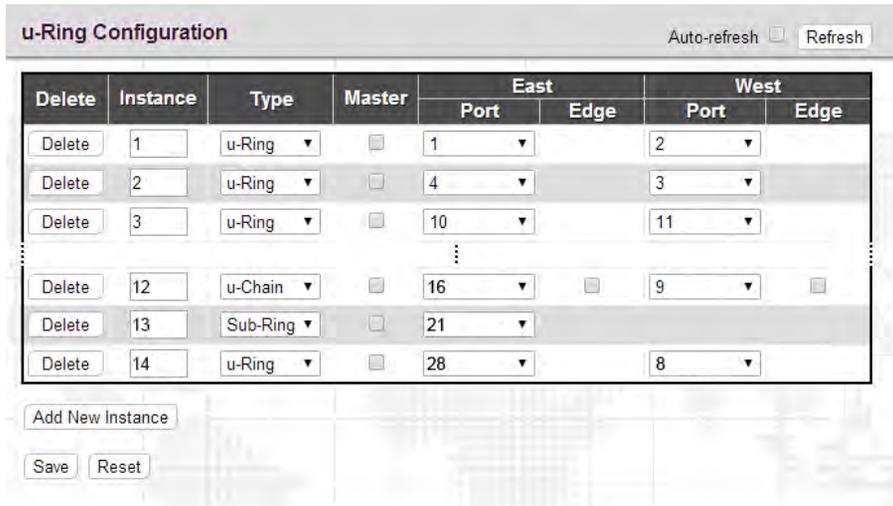
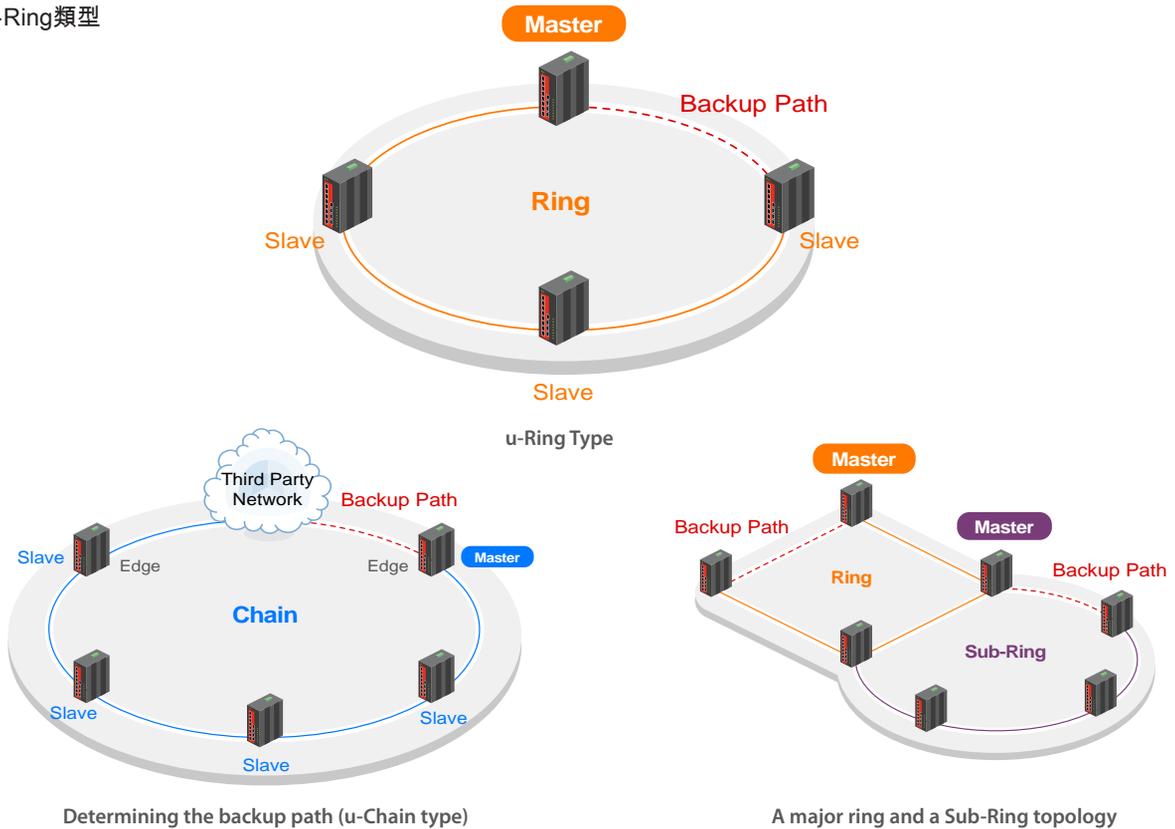


圖2：方便又容易設定的 u-Ring 功能設定Web 畫面

圖3：u-Ring類型

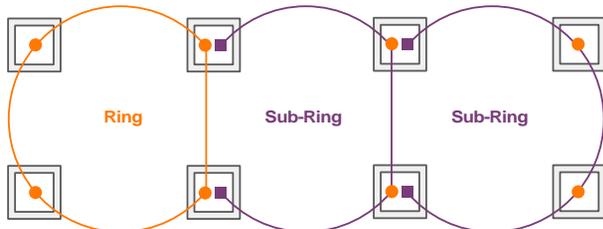


Determining the backup path (u-Chain type)

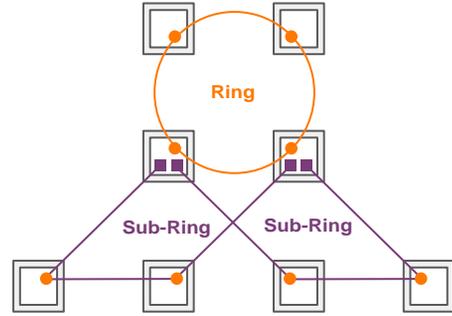
A major ring and a Sub-Ring topology

圖4：Ring 配置範例

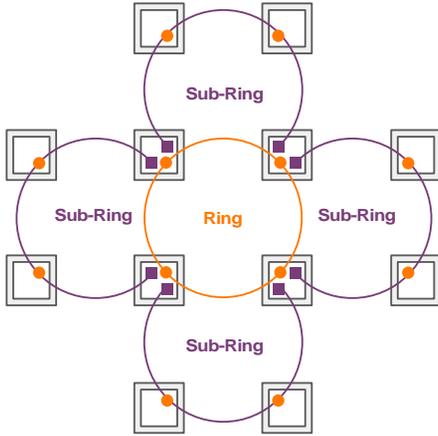
● u-Ring
■ Sub-Ring



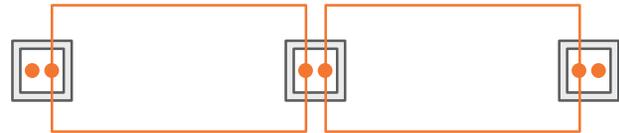
Ring Configuration Type



Combination of a ring and two Sub-Ring



Combination of a ring and four Sub-Ring

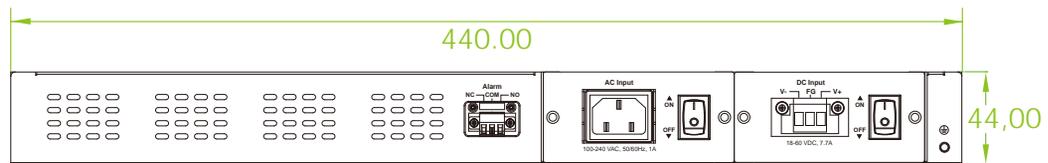


Cable Redundancy

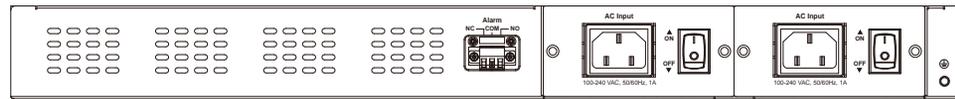
機構尺寸

後面

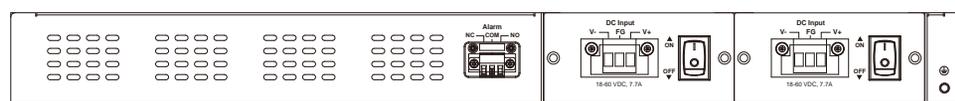
AD Power



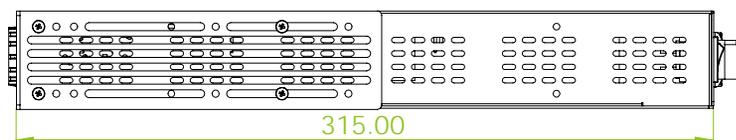
AA Power



DD Power

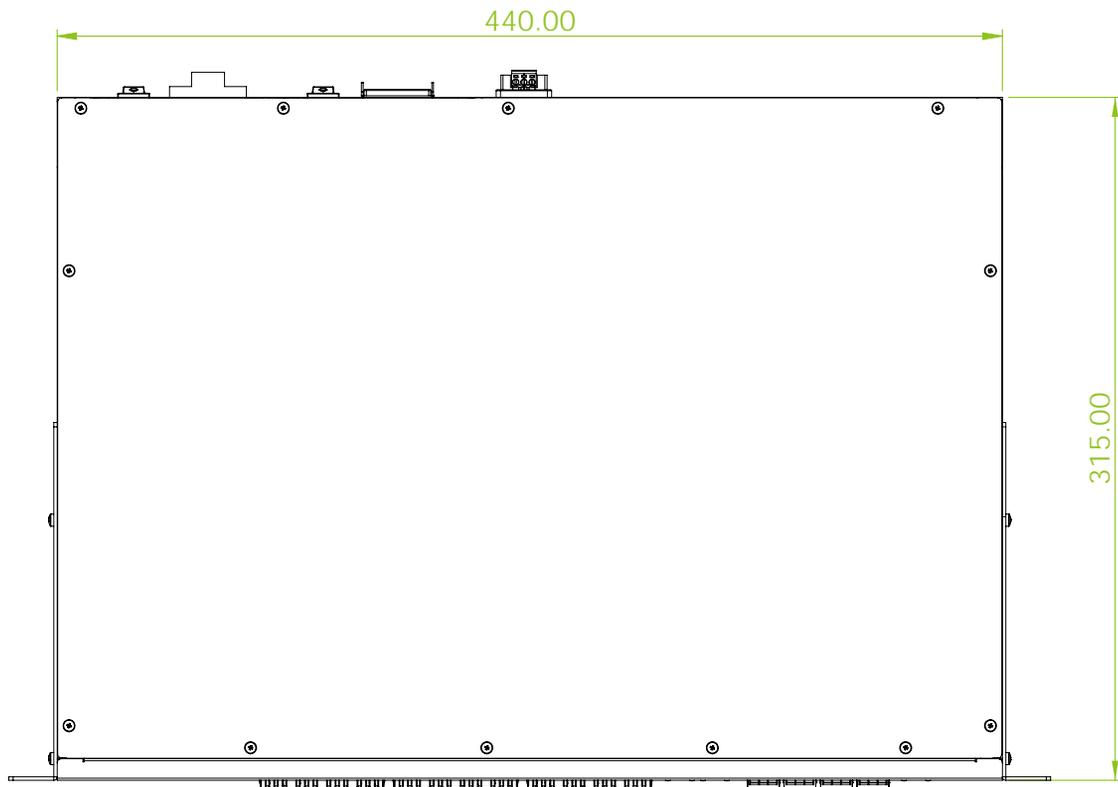


側邊

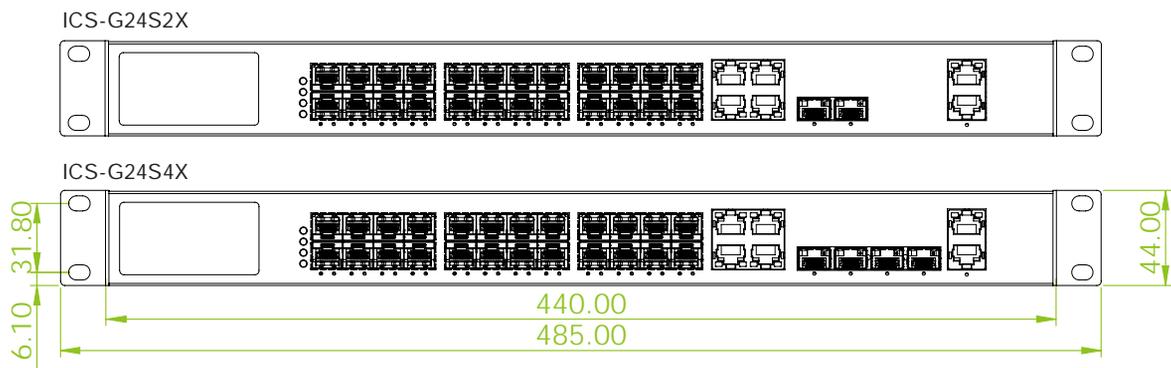


Industrial Core Switch - ICS-G24S4X, ICS-G24S2X

上部



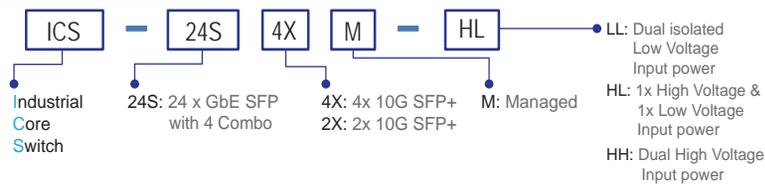
前面



訂購資訊

| 型號 | 管理 | 總埠數 | GbE Port | | 10GbE | 輸入電壓 | | 認證 | | | |
|---------------|----|-----|---------------------|----------------------------------------------|-------|-------------------|---------------------------------|----------------------------|--------------|----------------|-------------|
| | | | 100/1000 Base-X SFP | 10/100/1000 Base-T UTP or 100/1000Base-X SFP | | IEEE 802.3ae SFP+ | DC (Low Volt) isolated 24/48VDC | AC (High Volt) 110/240V AC | 安全 UL60950-1 | 鐵道交通 EN50121-4 | EN61000-6-2 |
| ICS-G24S4X-AA | V | 28 | 20 | 4 Combo | 4 | | 2 | V | V | V | V |
| ICS-G24S4X-DD | V | 28 | 20 | 4 Combo | 4 | 2 | | V | V | V | V |
| ICS-G24S4X-AD | V | 28 | 20 | 4 Combo | 4 | 1 | 1 | V | V | V | V |
| ICS-G24S2X-AA | V | 26 | 20 | 4 Combo | 2 | | 2 | V | V | V | V |
| ICS-G24S2X-DD | V | 26 | 20 | 4 Combo | 2 | 2 | | V | V | V | V |
| ICS-G24S2X-AD | V | 26 | 20 | 4 Combo | 2 | 1 | 1 | V | V | V | V |

型號命名規則



選購配件

| | |
|------------|-------------------------------------------------------------------------------------|
| DR-120-24 | Industrial Power, Input 88 ~ 132VAC / 176 ~ 264VAC, Output 24VDC, 120W, -10 ~ +60°C |
| DRP-240-48 | Industrial Power, Input 85 ~ 264VAC, Output 48VDC, 240W, -10 ~ +70°C |



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



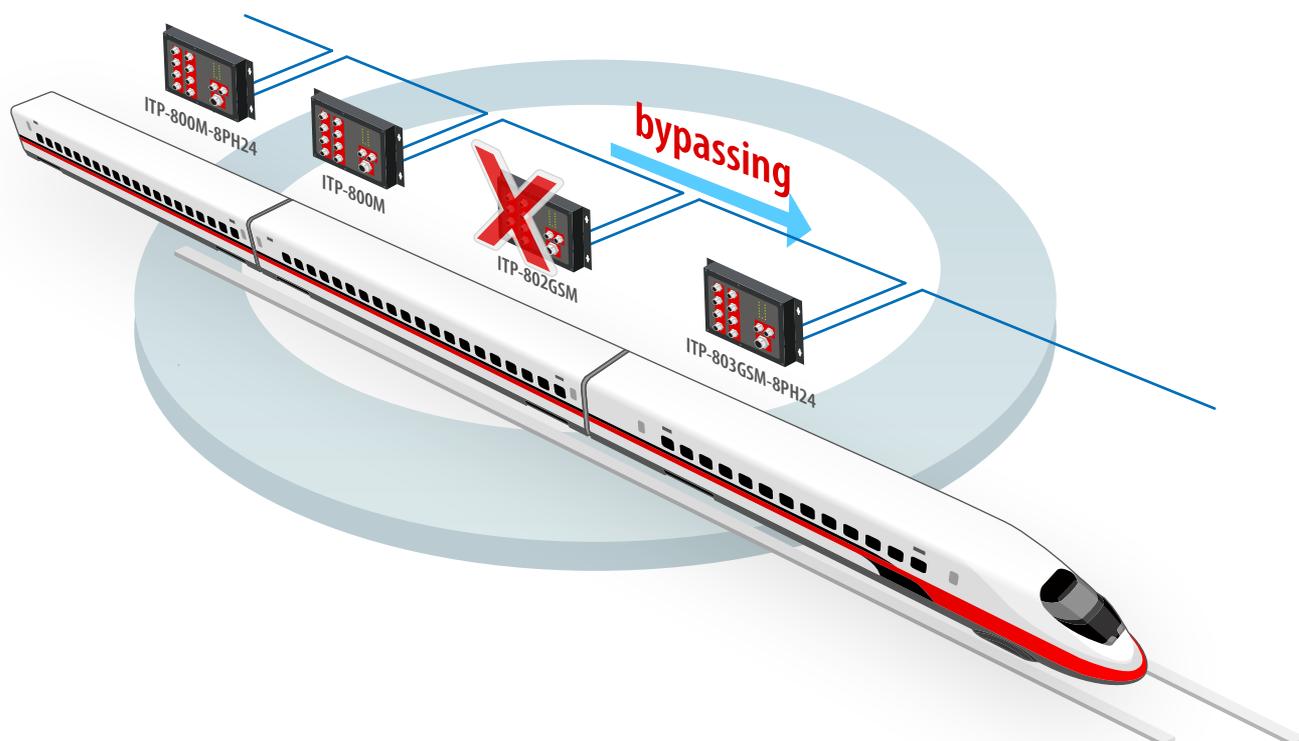
化工廠

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 | | | | | | | | | | | |

| | |
|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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

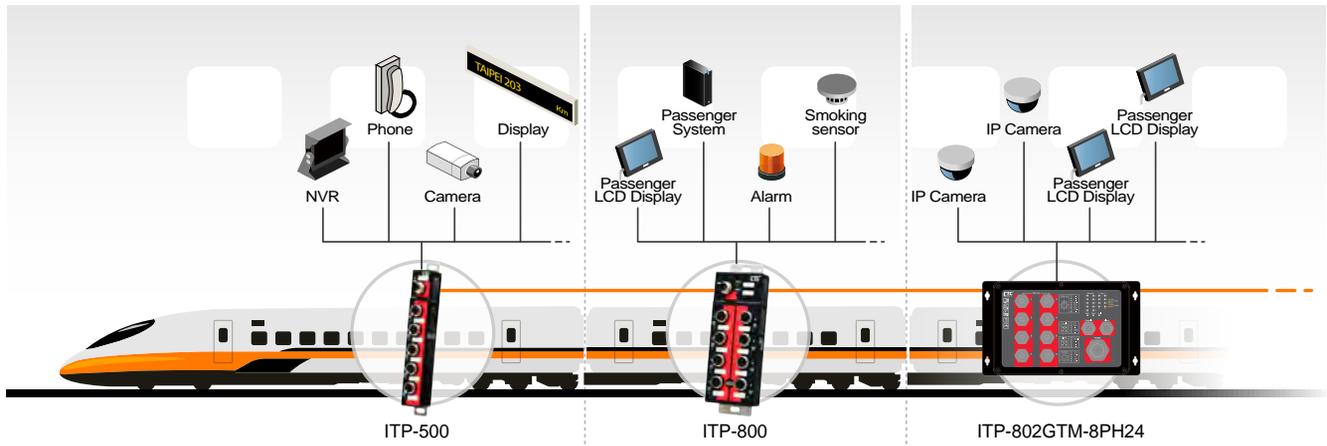


圖1 : ITP Series in Railway Application



圖2 : IP67 Protection



圖3 : Wide Range Temperature



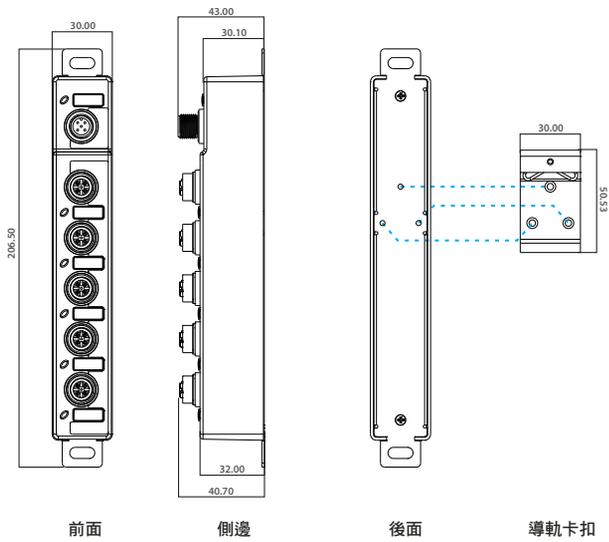
圖4 : ITP Series for Industrial Automation



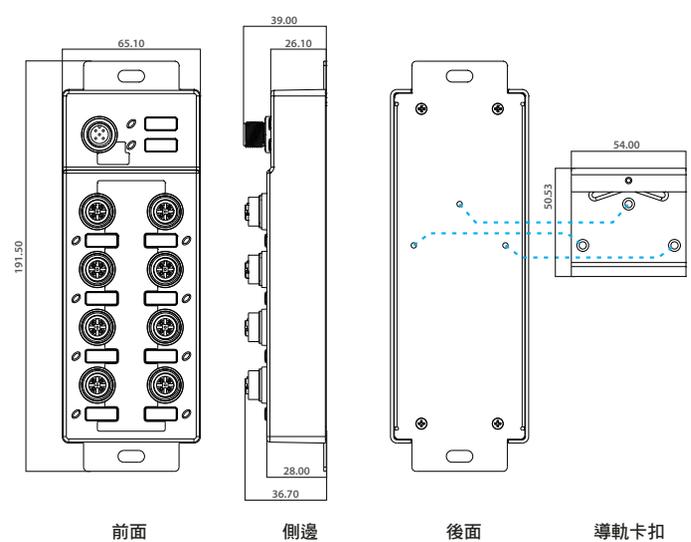
圖5 : Slim and Compact Size

機構尺寸

ITP-500



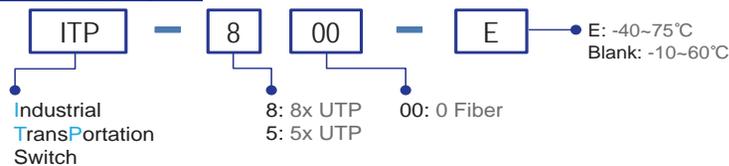
ITP-800



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

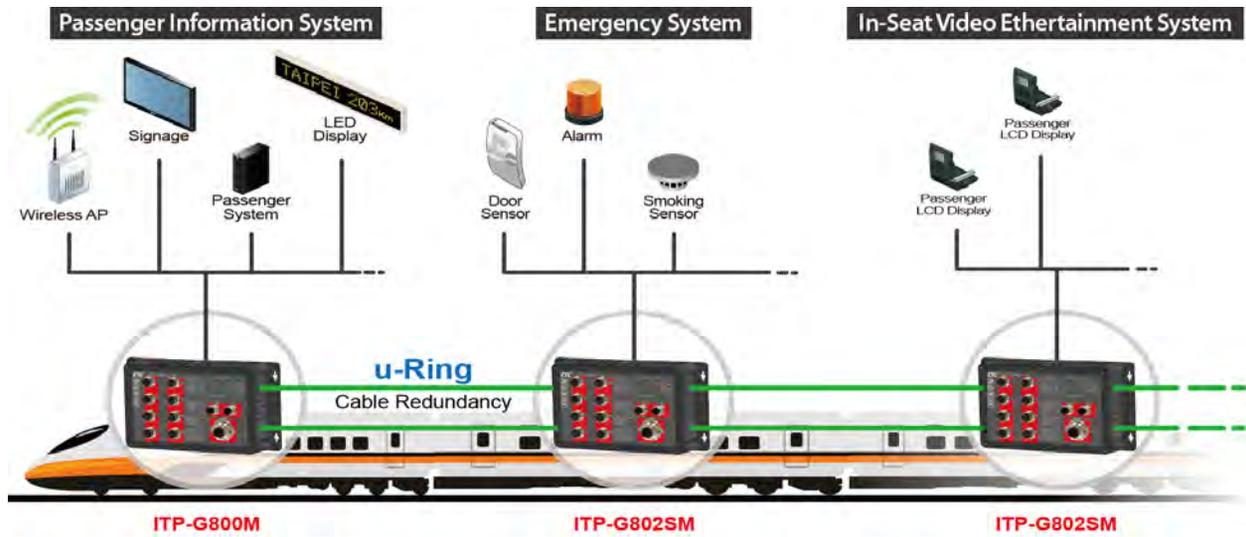


圖1 : ITP Series in Onboard Train Application



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"/> |

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

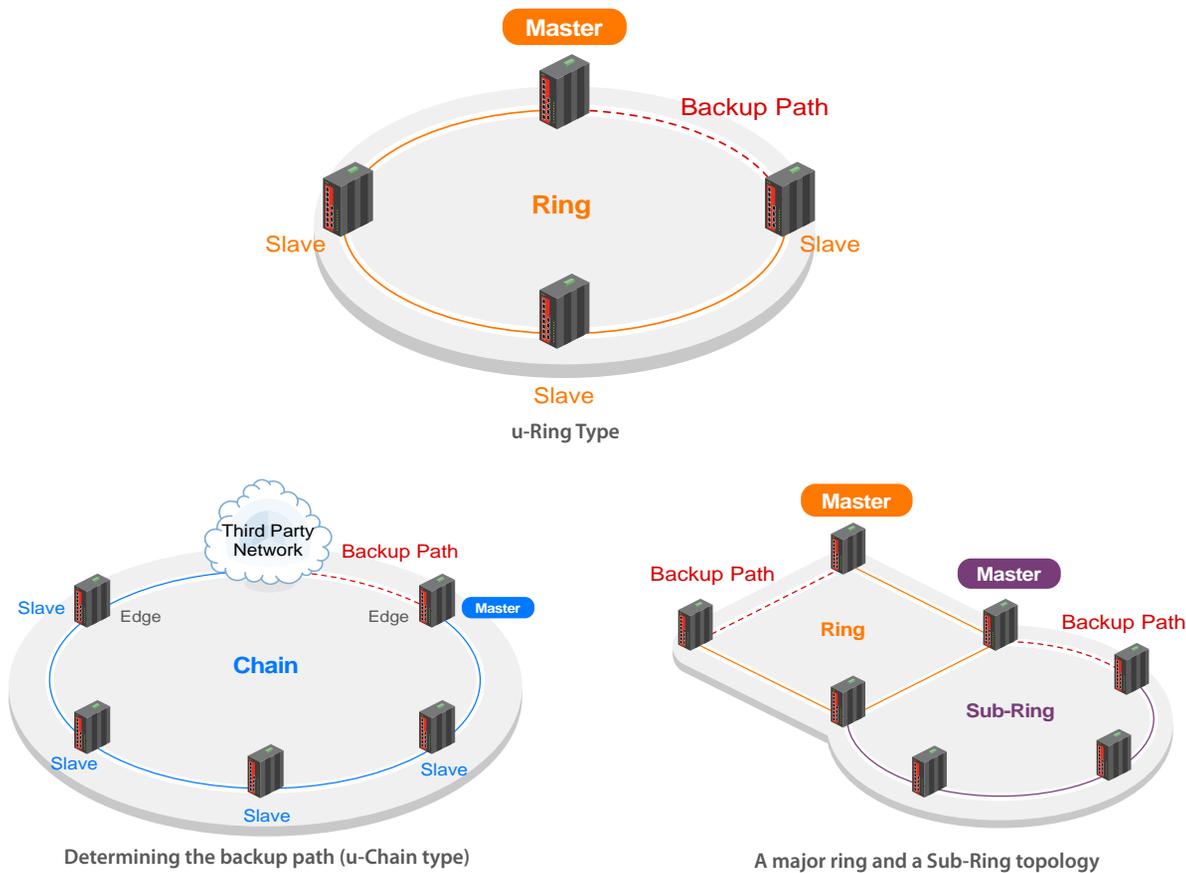
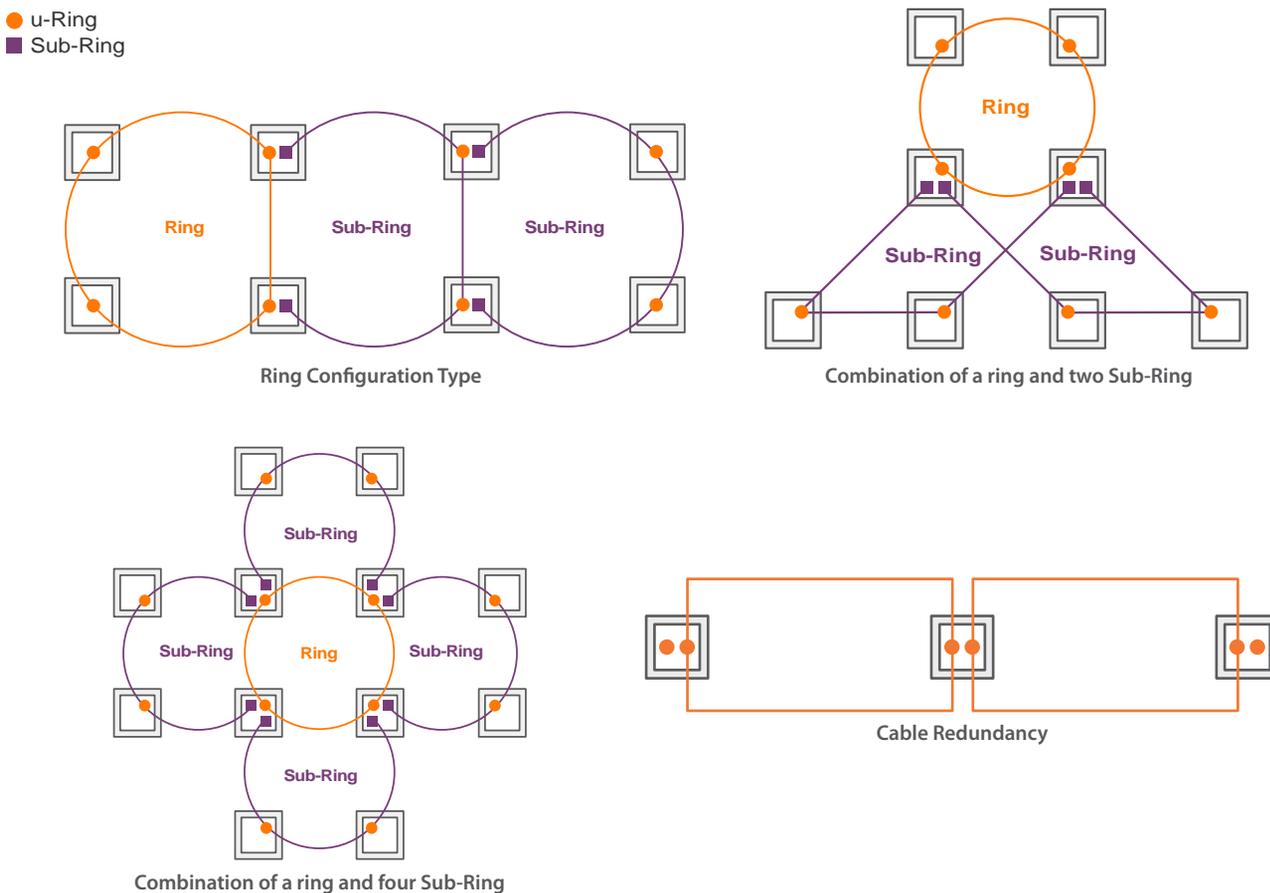
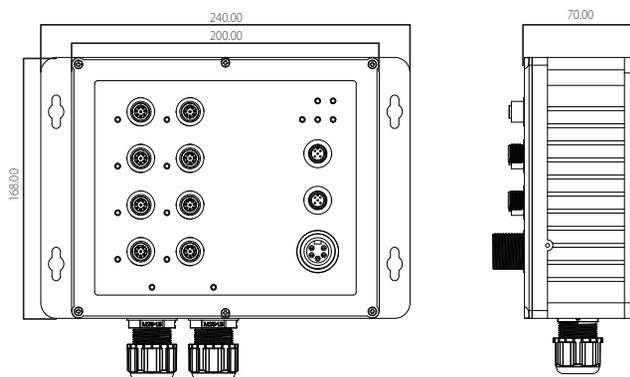


圖5 : u-Ring配置範例

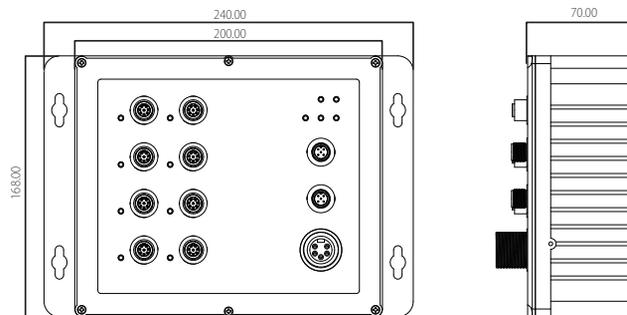


機構尺寸

ITP-G802SM



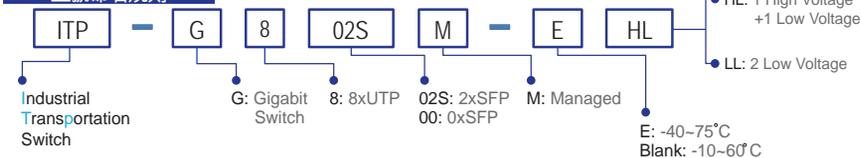
ITP-G800M



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



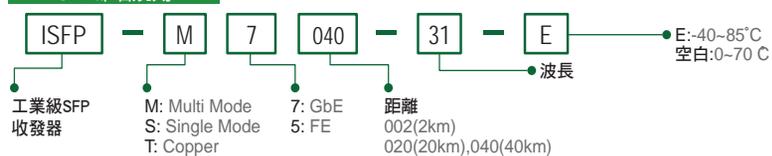
選購配件

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 |

| | |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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

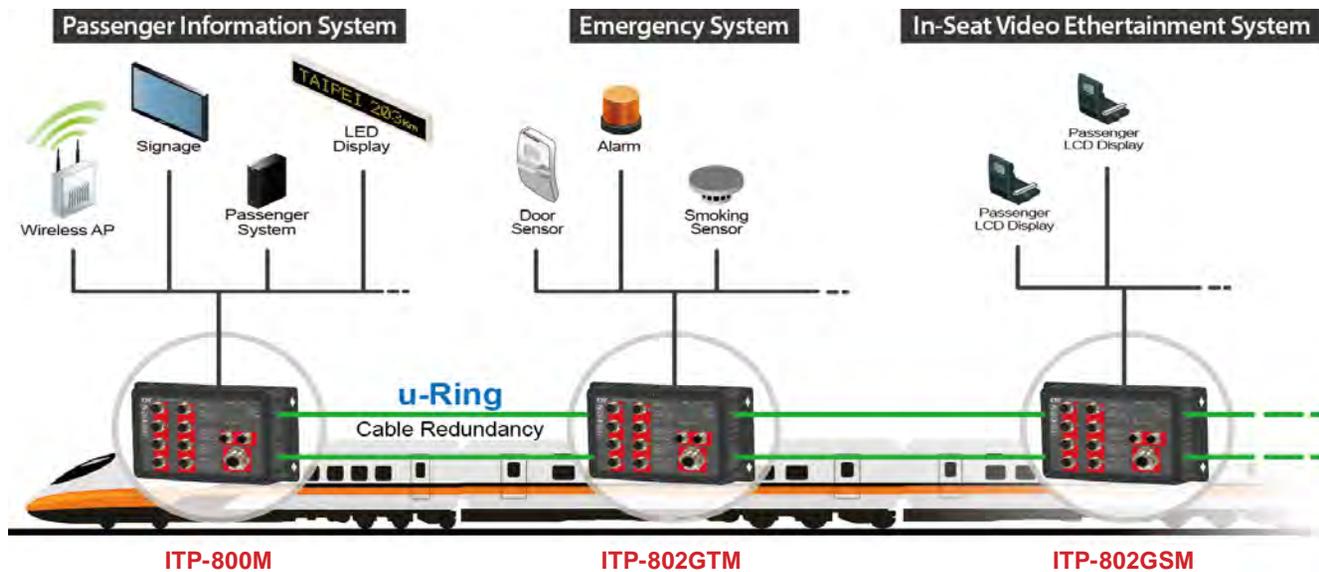


圖1 : ITP Series in Onboard Train Application

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

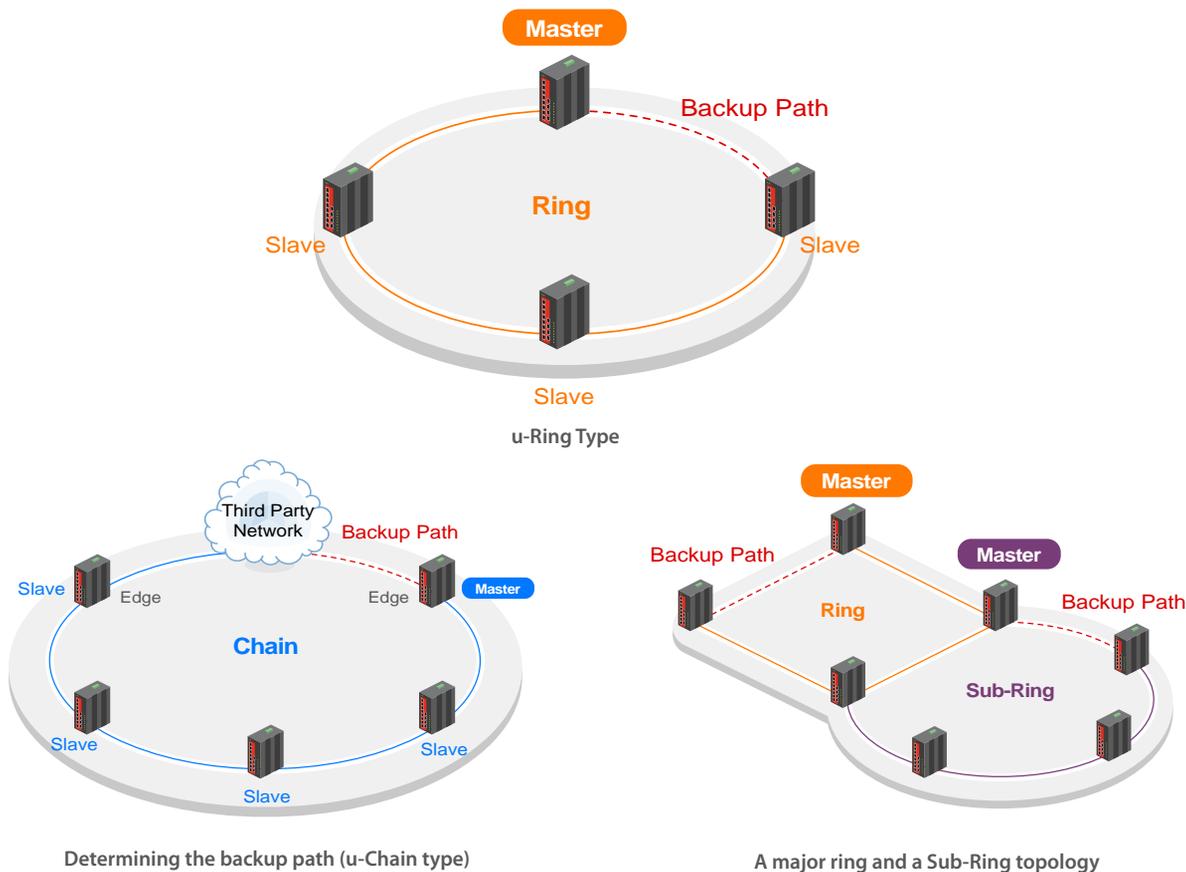
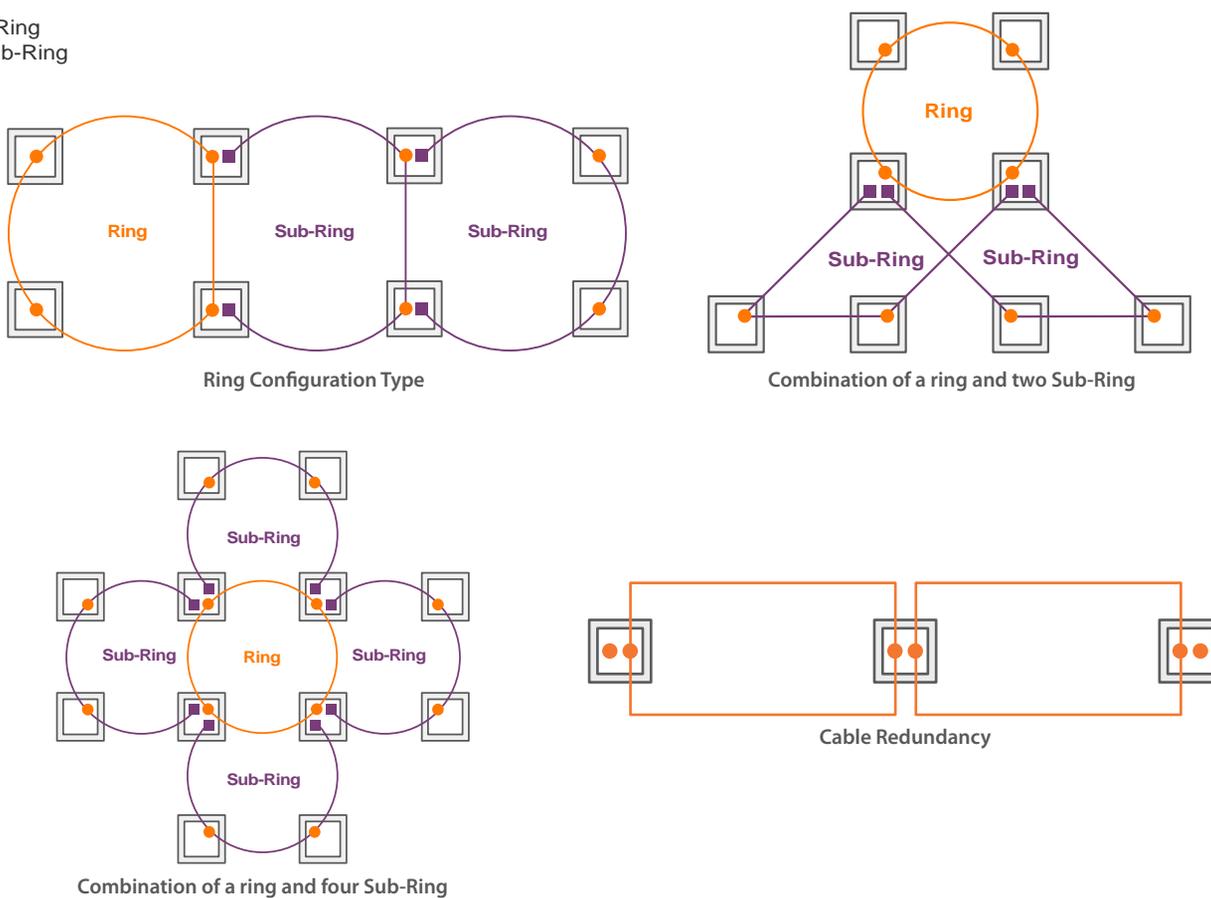


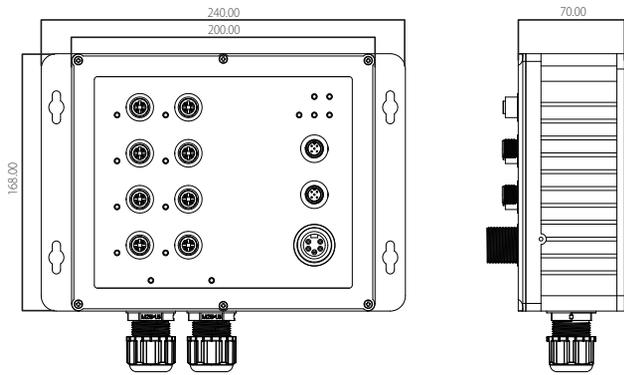
圖5 : u-Ring配置範例

● u-Ring
■ Sub-Ring

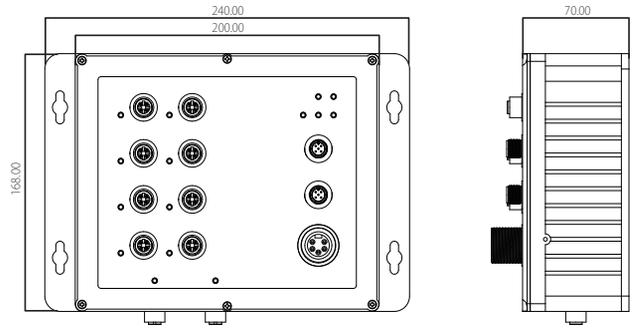


機構尺寸

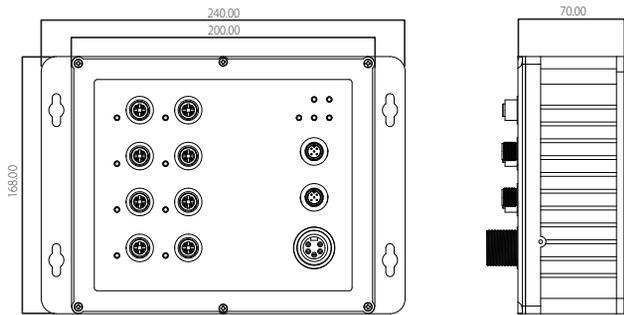
ITP-802GSM



ITP-802GTM



ITP-800M

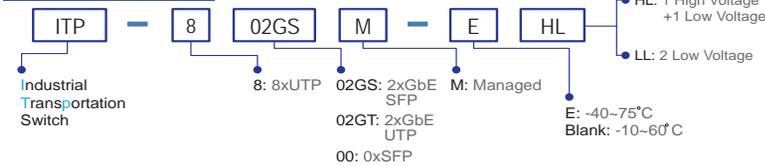


3
EN50155 Managed
FE Switches

訂購資訊

| 型號 | 管理 | IP67 | 總埠數 | UTP Port M12 | | Gigabit Port | 電源供應 | | 認證 | | | | 防震 | 操作溫度 |
|----------------|----|------|-----|----------------|-------|--------------|----------------------------------|-----------------------------------|-------------------|--------------|-------------------------|--------|----------|------|
| | | | | 10/100 Base-TX | 8 | | 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 | |

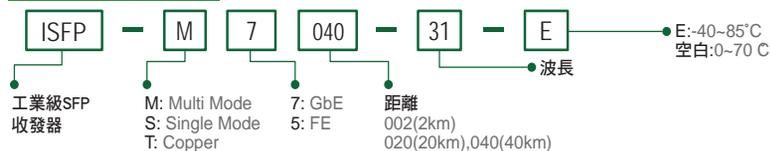
型號命名規則



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) |

軟體規格

| | |
|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Topology | |
| VLAN | IEEE 802.1q VLAN, up to 4094 IEEE 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 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) 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 |

| | |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 |

| | |
|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 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 | |

3 EN50155 Managed GbE PoE Switches

| | |
|-------------------------|-------------------------------------------------------------------------------------|
| 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

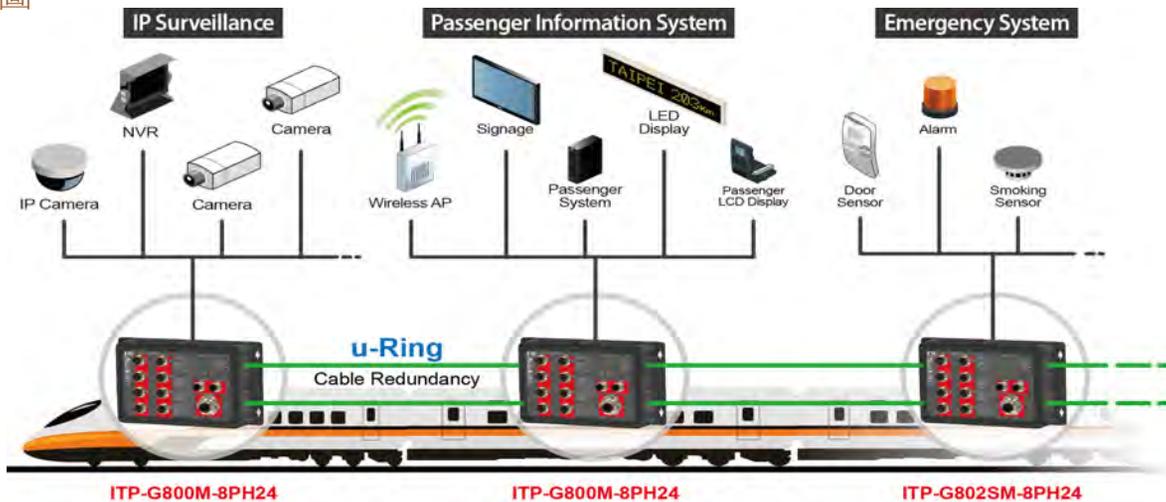


圖1 : ITP Series in Onboard Train Application

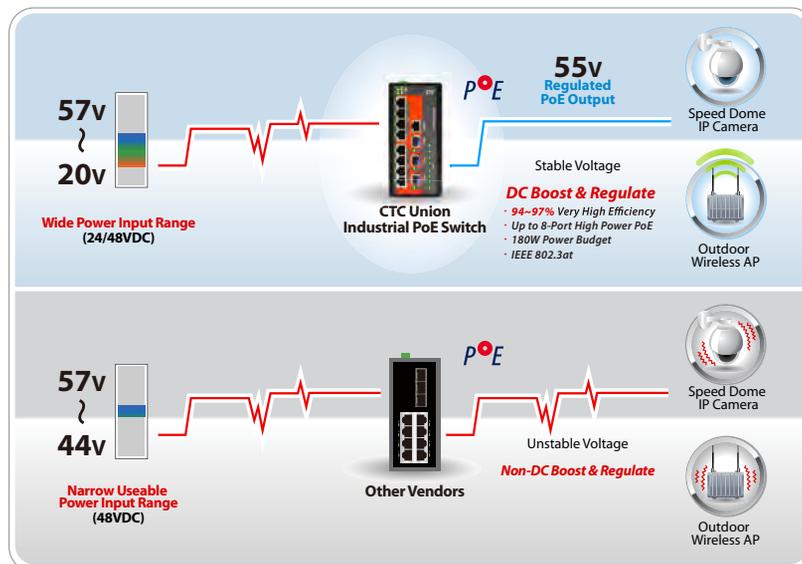


圖2 : PoE 高效率升壓與穩壓技術



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

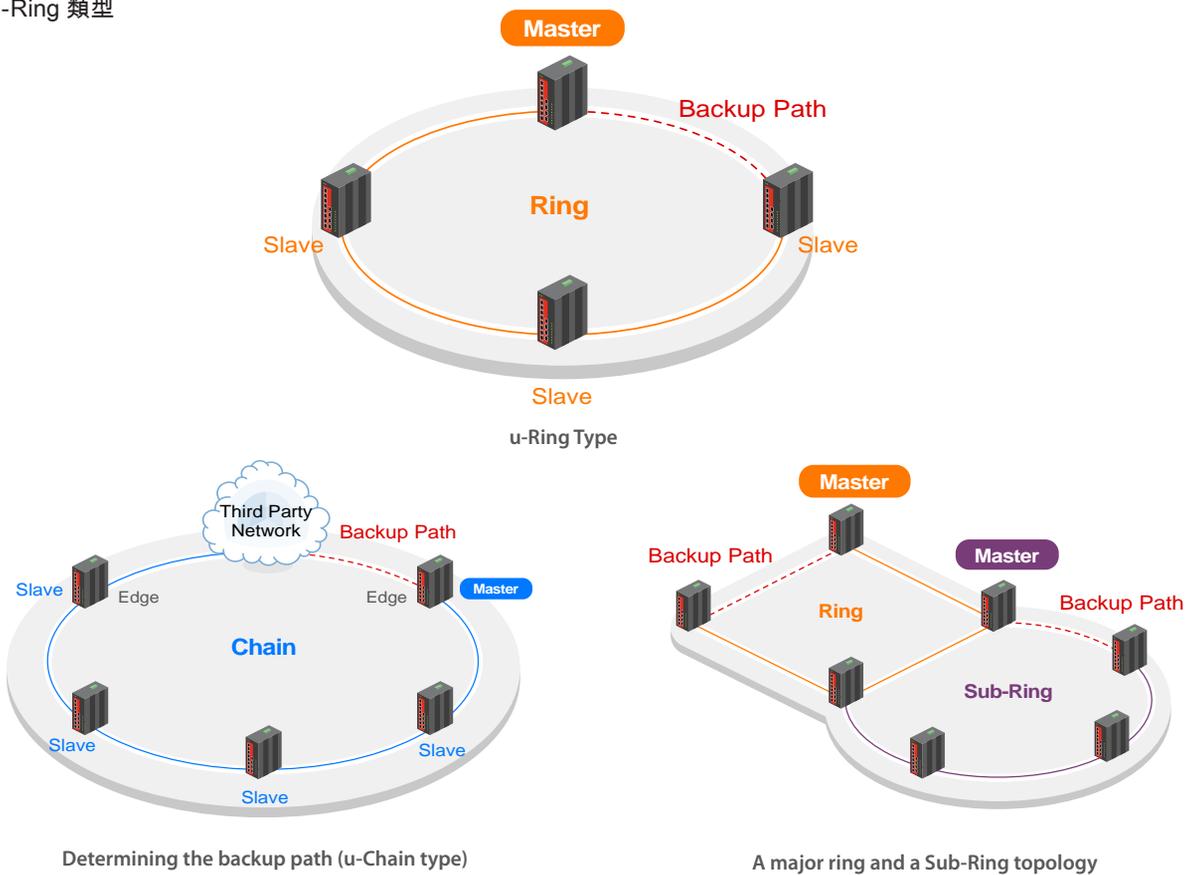
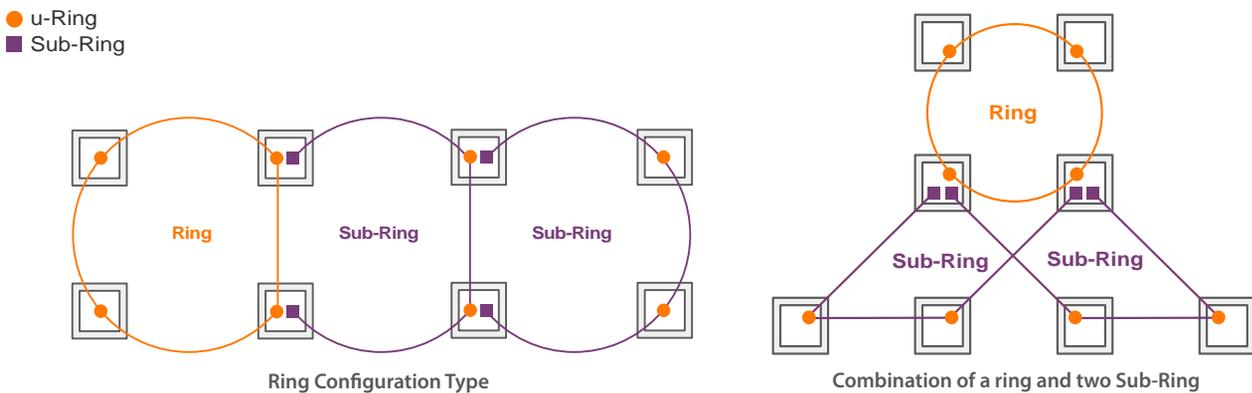
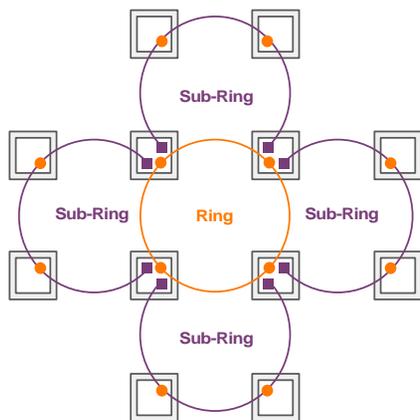
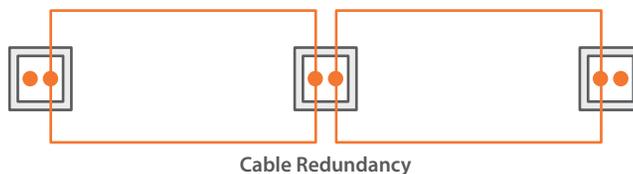


圖6：u-Ring配置範例





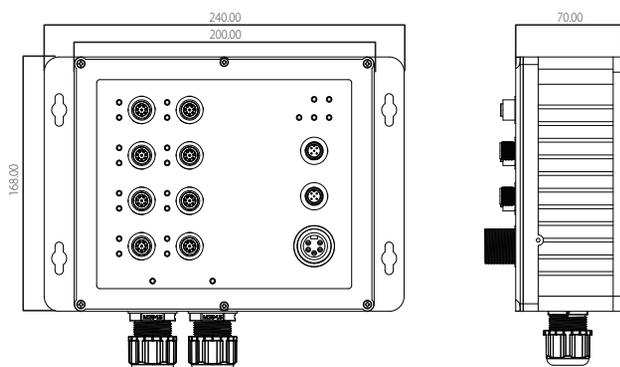
Combination of a ring and four Sub-Ring



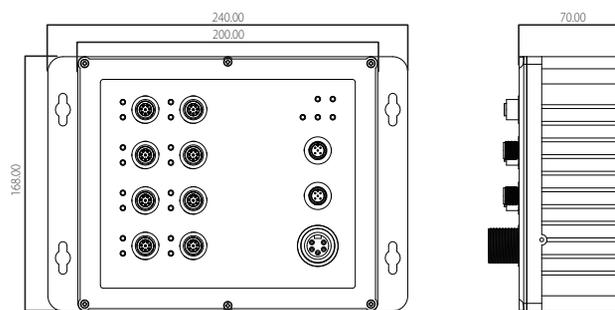
Cable Redundancy

機構尺寸

ITP-G802SM-8PH24



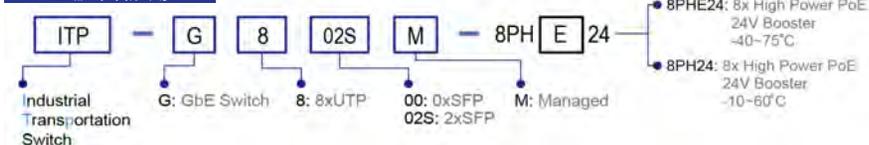
ITP-G800M-8PH24



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 | |

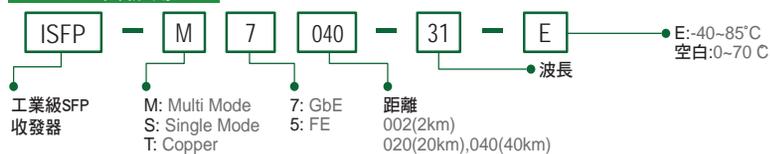
型號命名規則



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.

ITP-802GSM-8PH24, ITP-802GTM-8PH24 & ITP-800M-8PH24

www.ctcu.com
sales@ctcu.com

CTC
union

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| | |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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) |
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| 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 budget (maximum 180W) limitation 供電優先順序 |

應用圖

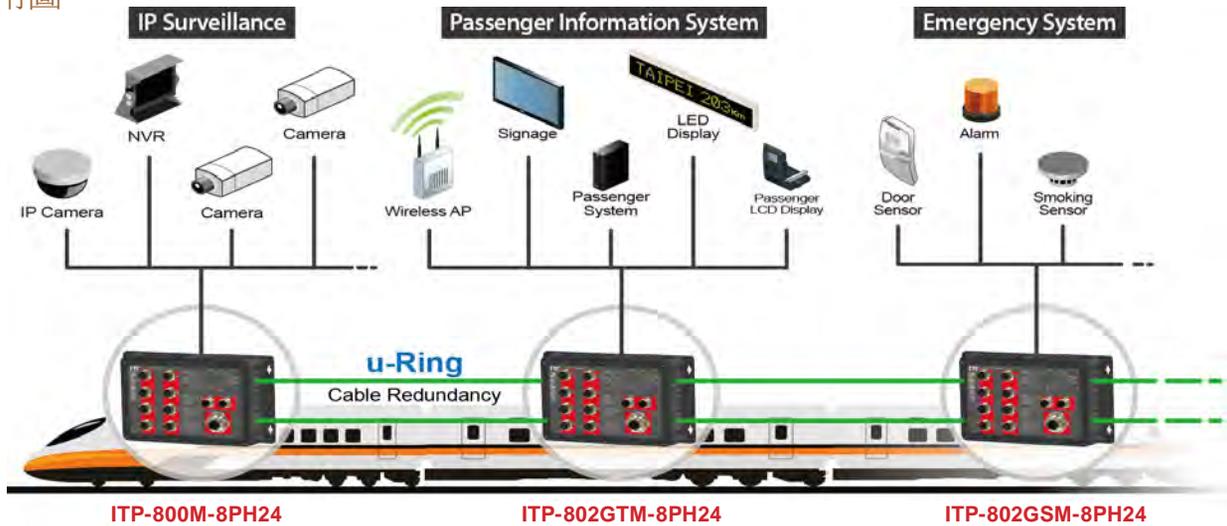


圖1 : ITP Series in Onboard Train Application

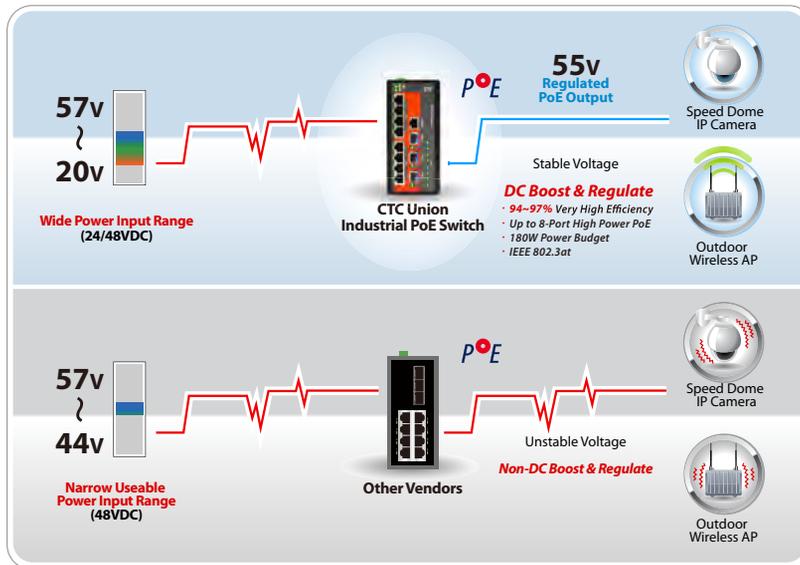


圖2 : PoE 高效率升壓與穩壓技術



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

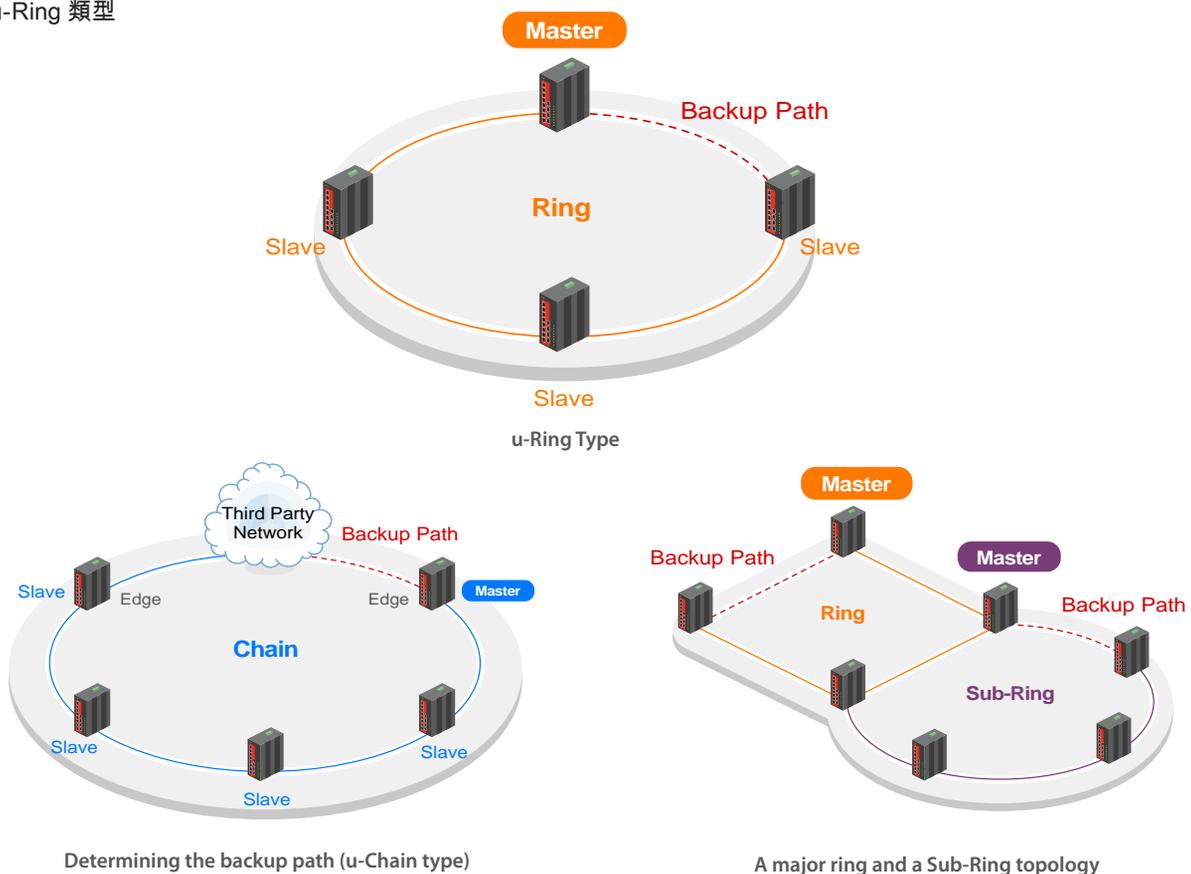
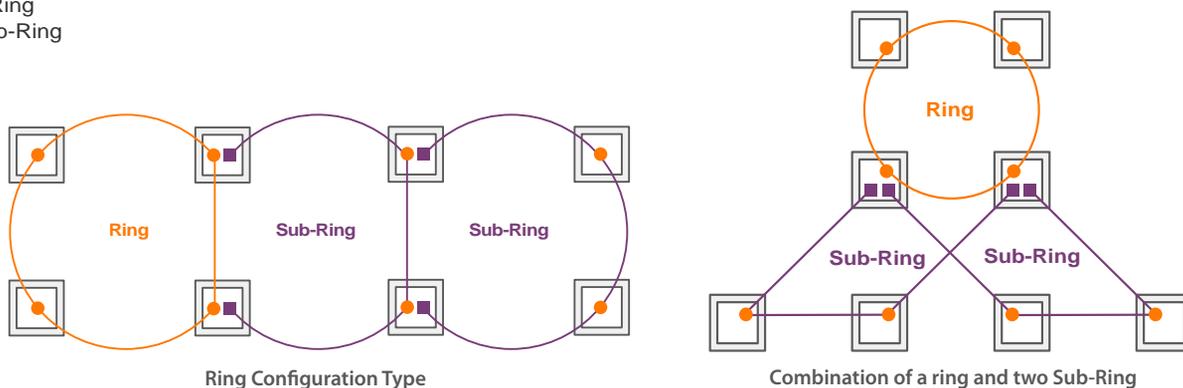
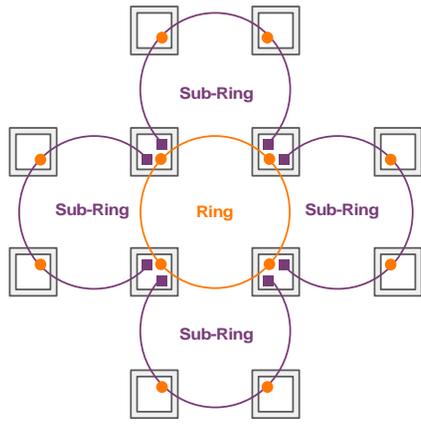


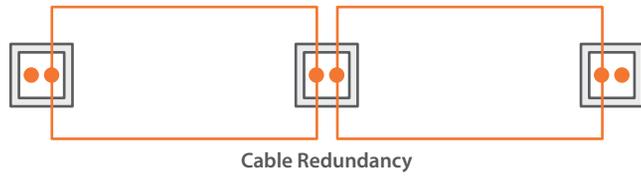
圖6：u-Ring配置範例

● u-Ring
■ Sub-Ring



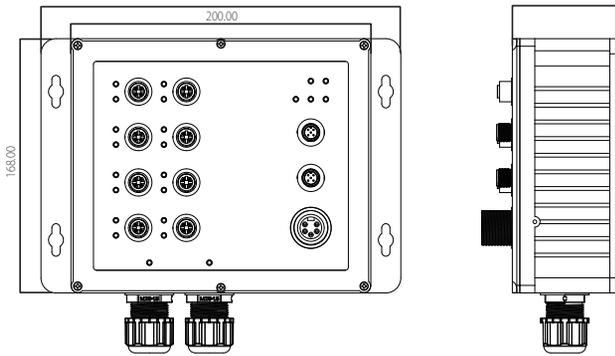


Combination of a ring and four Sub-Ring

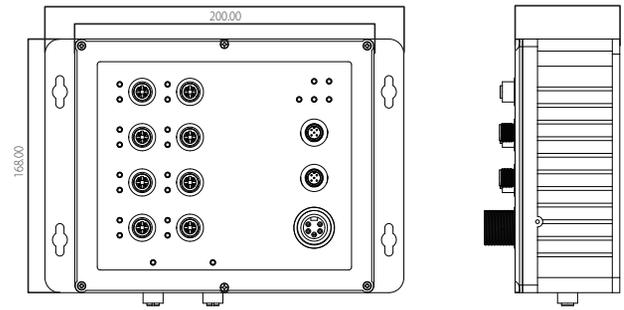


機構尺寸

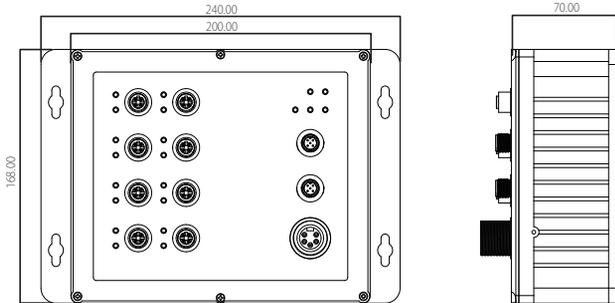
ITP-802GSM-8PH24



ITP-802GTM-8PH24



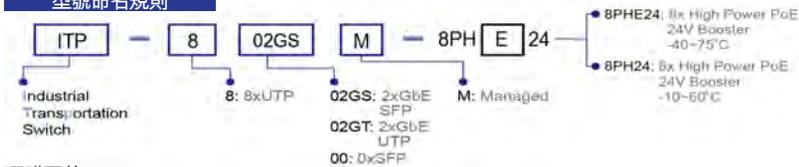
ITP-800M-8PH24



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 | 2 UTP | 8 | 180W | 180W | V | V | Plan | V | V | V | -10~60 C |
| ITP-802GTM-8PHE24 | V | V | 10 | 8 | 2 UTP | 8 | 180W | 180W | V | V | Plan | V | V | V | -40~75 C |
| ITP-800M-8PH24 | V | V | 8 | 8 | — | — | 8 | 180W | V | V | Plan | V | V | V | -10~60 C |
| ITP-800M-8PHE24 | V | V | 8 | 8 | — | — | 8 | 180W | V | V | Plan | V | V | V | -40~75 C |

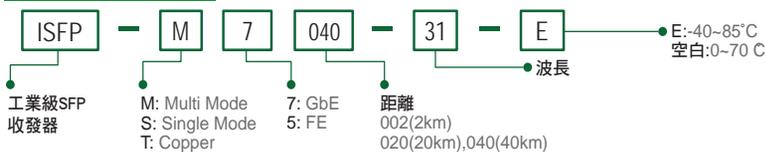
型號命名規則



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.

NEW



IPS-G803SM

IEC 61850-3 8x10/100/1000Base-T+
3x100/1000Base-X SFP



此IPS-G803SM 管理型千兆乙太網交換器系列是為滿足變電站系統的需求所設計，並通過IEC 61850-3和IEEE 1613認證。本交換器具備許多備援功能，能增加您通訊系統的可靠性，包括備援及獨立電源供應器(24/48 VDC和110/220 VDC/VAC)、STP/RSTP/MSTP/ITU-T G.8032環形和多重u-環形的備援佈線、第2層乙太網IGMP、VLAN、QoS、Security、IPv6、bandwidth control、port mirroring、Cable diagnostic 和節能乙太網。此交換器具備堅固機體及DIN軌道式或壁掛式安裝，專為變電站網路等嚴苛環境所設計。本系列產品可使用CTC Union的SmartView™ 管理系統以方便進行集中式的管理。

功能特色

- 8 個 10/100/1000Base-T RJ-45 和 3x 100/1000Base-X SFP Fiber
- 通過 UL60950-1、CE、FCC、EN50121-4 認證
- 通過變電站 IEC 61850-3、IEEE1613 認證
- 具雙電源冗餘備援輸入，可供選擇輸入電壓有，低電壓的 isolated 24/48VDC，或高電壓的 isolated AC/DC(110/220 VAC/VDC) 電源
- 寬溫工作範圍 -40 ~ 85°C
- Din Rail 軌道式安裝或壁掛式
- IP30 金屬外殼、無風扇
- 支援 Cable diagnostic，可以診斷網路線故障點，定位線纜的故障點距離
- 支援 IEEE1588 PTP V2 精密時間同步，每個端口都可以選擇以下模式操作：Master, Boundary, Slave mode
- 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 Switching(ERPS), and u-Ring 可用於網路佈線備援
- 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 (圖 2)
- u-Ring 冗餘乙太網環網，在最多 250 個裝置時，恢復時間 <10ms
- 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 RMON、MIB II、Private MIB、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，以方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) IEEE 802.1Q for VLAN Tagging 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) IEEE802.3x Flow Control and Back Pressure ITU-T G.8032/ Y.1344 ERPS (Ethernet Ring Protection Switching) 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) |
| 交換架構 | Back-plane (Switching Fabric): 22 Gbps |
| Data Processing | Store and Forward |
| Flow Control | IEEE 802.3x flow control, back pressure flow control |
| Jumbo Frame | 9.6KB |
| MAC Address Table | 8K |
| Memory Buffer | 256K Bytes for packet buffer |

| 網路連接器 | 8個10/100/1000Base-T RJ-45 auto negotiation speed 自動 MDI/MDI-X 功能, 全/半雙工 3個 100/1000Base-X 雙速 mode SFP slot, with DDMI | | | | | | | | | | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------|--------|-------|--------|-------|-------|-------|-------|--------|
| Console | RS-232 (RJ-45) | | | | | | | | | | |
| 網路線規格 | UTP/STP above 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), Fault (琥珀色),(-LL model) Power 1 (綠), Power 2 (綠), Power 3 (綠), Fault (琥珀色), (-HL model) 每RJ-45端口: 10/100 Link/Act(綠), 1000 Link/Act(琥珀色) 每SFP Fiber 端口: Link/Act(綠) | | | | | | | | | | |
| 電壓極性保護 | 提供,用以保護電源輸入 | | | | | | | | | | |
| 電流過載保護 | 提供 | | | | | | | | | | |
| CPU Watch Dog | 提供 | | | | | | | | | | |
| 電源輸入 | 配備2個isolated低電壓DC輸入冗餘備援電源 (-LL model) 配備2個isolated低電壓DC輸入冗餘備援電源及1個高電壓 AC/DC輸入電源 (-HL model) Isolated低電壓DC: Isolated24/48V (18~72VDC), 可拔插式配接器 高電壓 AC/DC : Isolated110/220VAC (88VAC~264VAC) 或 110/220VDC (85~300VDC), 可拔插式配接器 | | | | | | | | | | |
| 耗電量 | <table border="1"> <thead> <tr> <th>輸入電壓</th> <th>IPS-G803SM</th> </tr> </thead> <tbody> <tr> <td>110VAC</td> <td>9.3 W</td> </tr> <tr> <td>220VAC</td> <td>9.2 W</td> </tr> <tr> <td>24VDC</td> <td>9.6 W</td> </tr> <tr> <td>48VDC</td> <td>11.1 W</td> </tr> </tbody> </table> | 輸入電壓 | IPS-G803SM | 110VAC | 9.3 W | 220VAC | 9.2 W | 24VDC | 9.6 W | 48VDC | 11.1 W |
| 輸入電壓 | IPS-G803SM | | | | | | | | | | |
| 110VAC | 9.3 W | | | | | | | | | | |
| 220VAC | 9.2 W | | | | | | | | | | |
| 24VDC | 9.6 W | | | | | | | | | | |
| 48VDC | 11.1 W | | | | | | | | | | |
| 告警繼電器規格 | Relay outputs with current carrying capacity of 1 A @24VDC | | | | | | | | | | |

| | |
|---------|-----------------------------------------------------------------------------------------------------|
| 可插拔式配接器 | 配備2個低電壓備援輸入電源，一個告警繼電器(6Pin) (-LL model) 配備2個低電壓備援輸入電源，一個告警繼電器(6Pin)及一個高電壓輸入電源(2 Pin) (-HL model) |
| 工作溫度 | -40°C~85°C |
| 工作濕度 | 5% to 95%(無冷凝) |
| 儲存溫度 | -40°C~85°C |
| 外殼 | 金屬外殼, IP30防護、無風扇 |
| 尺寸 | 106x82x152mm (D x W x H) |
| Weight | 0.885公斤 (IPS-G803SM-LL) 1.085公斤 (IPS-G803SM-HL) |
| 安裝方式 | Din Rail 軌道式安裝或壁掛式 |
| 產品保固 | 5年 |
| 認證 | |
| EMC/EMS | CE, FCC |

軟體規格

| | |
|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Topology | |
| VLAN | IEEE 802.1q VLAN, up to 4094 ID IEEE 802.1q VLAN, up to 4094 Groups IEEE 802.1ad Q-in-Q MAC-based VLAN, up to 256 entries IP Subnet-based VLAN, up to 128 entries Protocol-based VLAN (Ethernet, SNAP, LLC), up to 128 entries VLAN Translation, up to 256 entries MVR (Multiple VLAN Registration) GVRP (GARP VLAN Registration Protocol) |
| 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 (參見圖2, 圖4) 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 |
| Classification 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 Feature | |
| IGMP / MLD Snooping | IGMP Snooping v1, v2, v3 / MLD Snooping v1, v2 support 1022 IGMP groups Port Filtering Profile Throttling Fast Leave Maximum Multicast Group : up to 1022 entries Query / Static Router Port |
| Security Features | |
| IEEE 802.1X | Port-Based MAC-Based |

| | |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EMI | FCC Part 15 Subpart B Class A EN 55022 Class A |
| EMS 抗電磁干擾等級 | EN61000-4-2 (ESD) Level 4, Criteria B EN61000-4-3 (RS) Level 4, Criteria A EN61000-4-4 (EFT) Level 4, Criteria A EN61000-4-5 (Surge) Level 4, Criteria B EN61000-4-6 (CS) Level 4, Criteria A EN61000-4-8 (Magnetic Field) Level 5, Criteria A |
| Safety | UL60950-1 |
| 變電站 | IEC 61850-3, IEEE 1613 |
| 軌道交通 | EN50121-4 |
| 防撞擊 | IEC 60068-2-27 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC 60068-2-6 |

| | |
|--------------------------------------------------|---------------------------------------------------------|
| 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 Authentication | Remote Authentication (via RADIUS/ TACACS+) |
| Management Interface Access | Web, Telnet / SSH , CLI RS-232 console |
| Filtering | |

Management Features

| | |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------|
| CLI | Cisco® like CLI |
| Web Based Management | |
| Telnet | Server |
| SNMP | V1, V2c, V3 |
| SW & Configuration Upgrade | TFTP, HTTP 有備援韌體以防止程式升級失敗 |
| RMON | RMON I (1, 2, 3, 9 group), RMON II |
| MIB | MIB II RFC1213, Private MIB |
| 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, SMTP/ e-mail event message, 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 Features | |
| 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

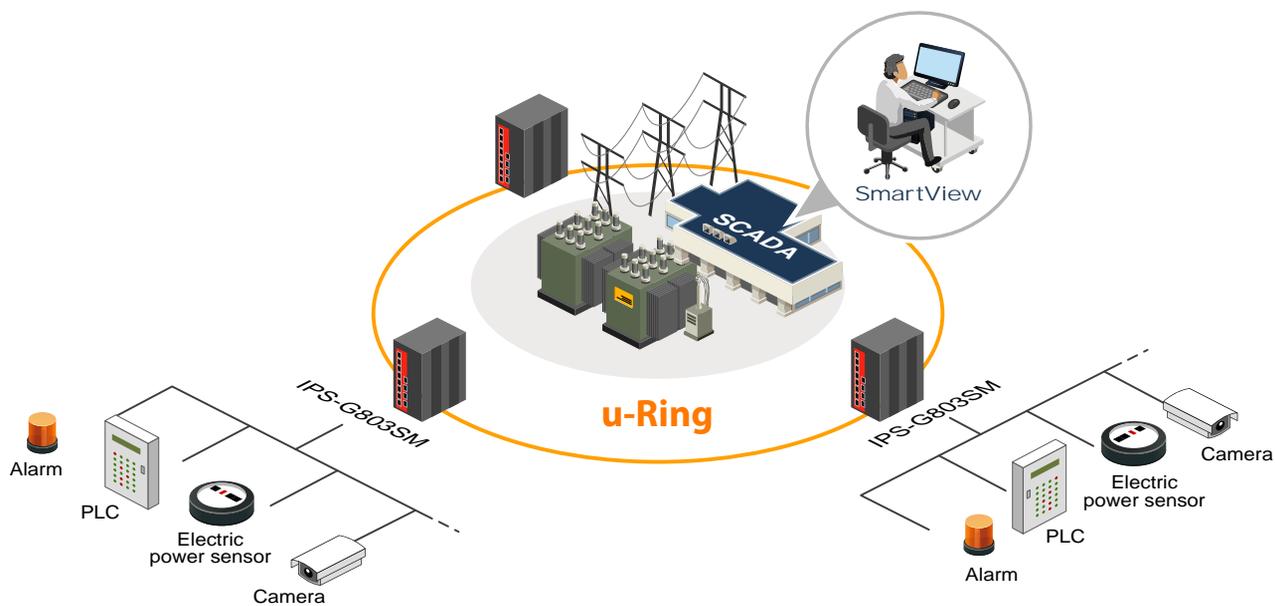


圖1 : IPS Series in Power Substation Application

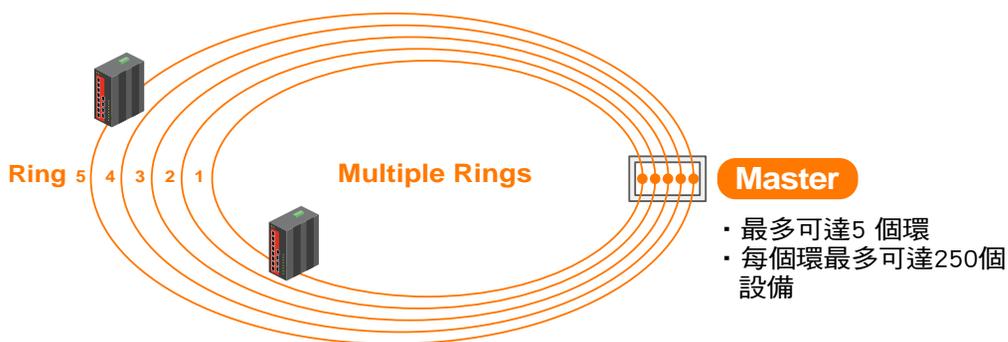


圖2 : Multiple Rings

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

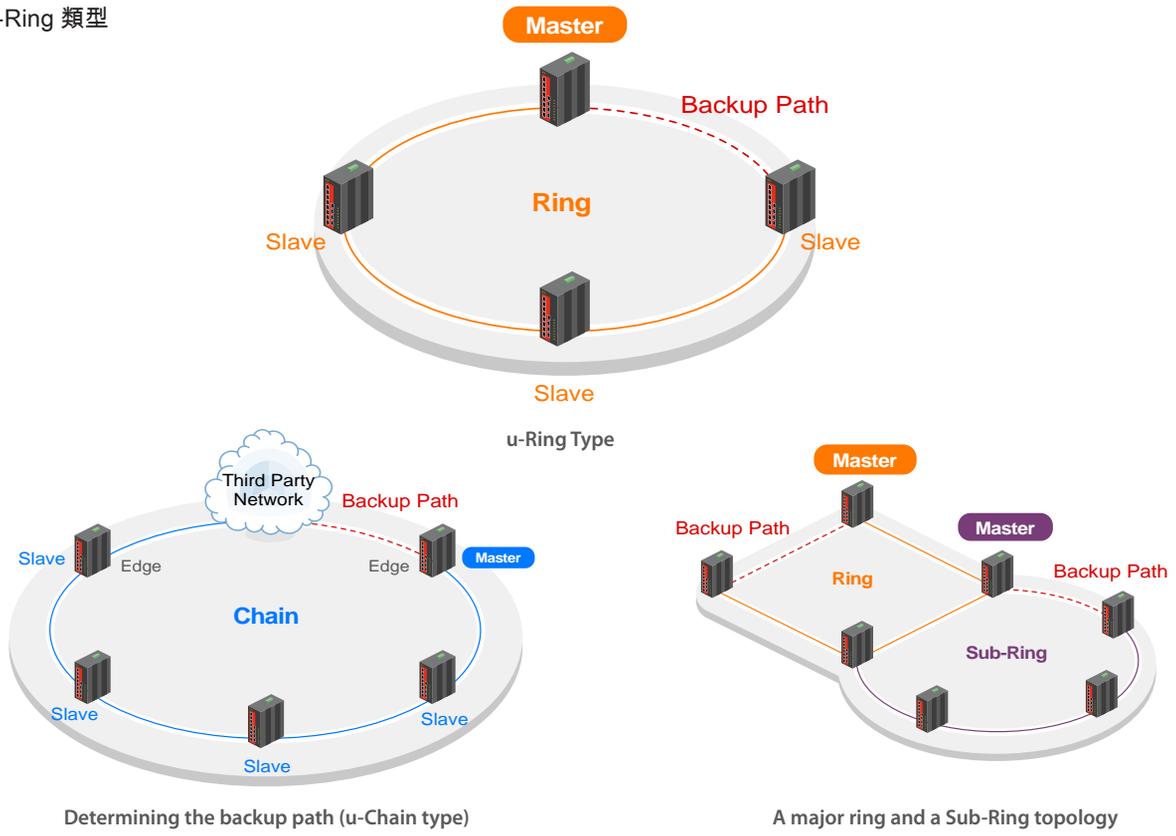
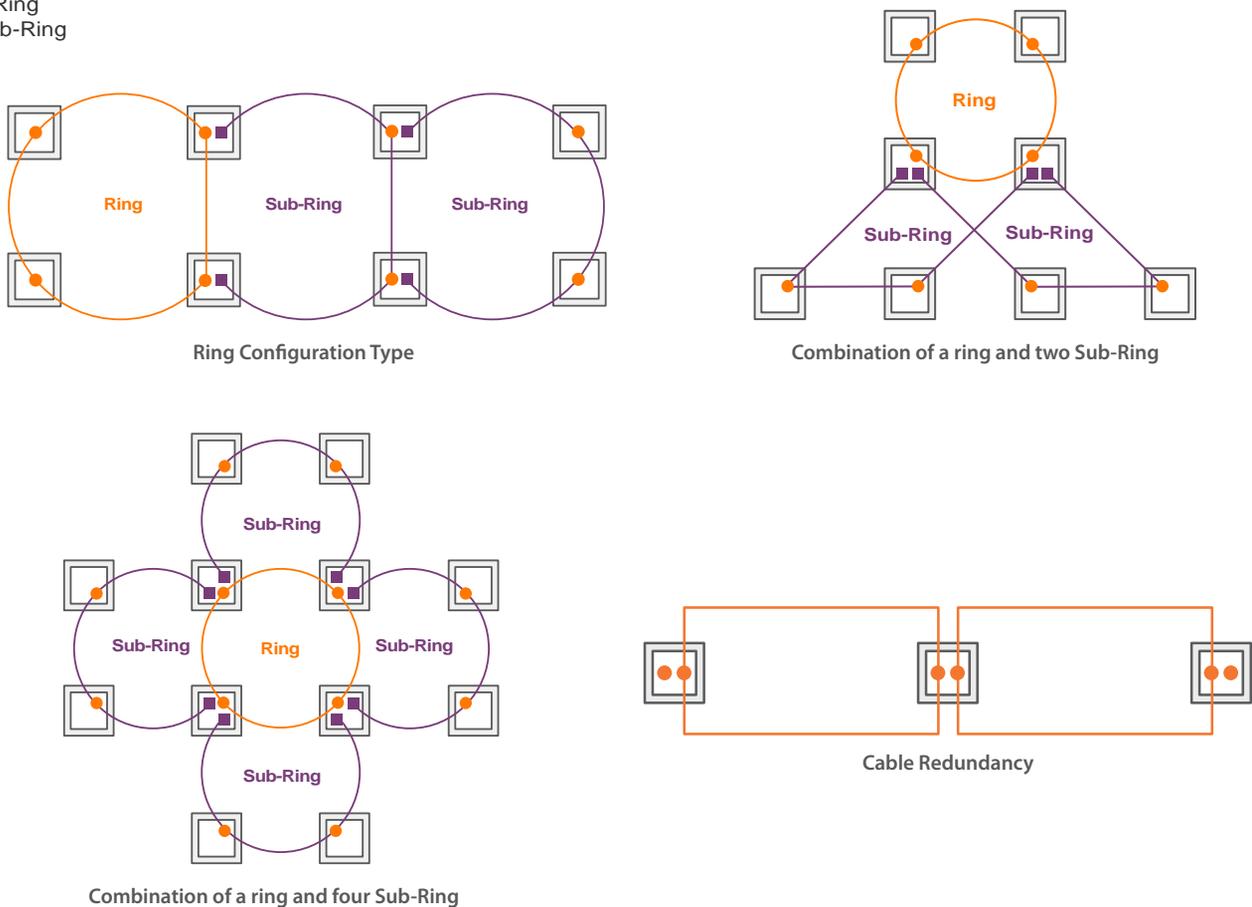
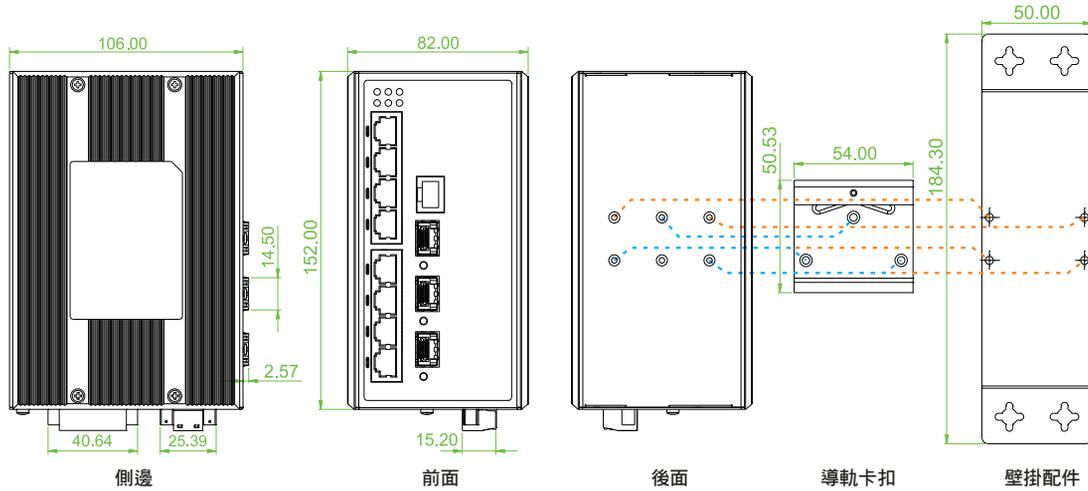


圖5：Ring 配置範例

● u-Ring
■ Sub-Ring



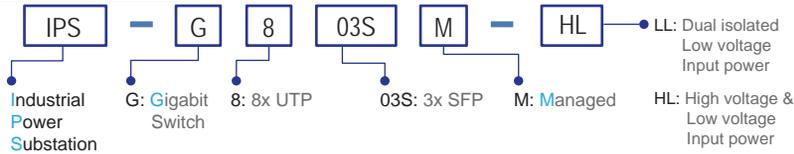
機構尺寸



訂購資訊

| 型號 | 管理 | 總埠數 | UTP Port | 光纖 | 輸入電壓 | | 認證 | | | |
|---------------|----|-----|--------------------|-----------------|--------------------------------|-----------------------------|----------------|----------------|--------------|---------|
| | | | 10/100/1000 Base-T | 100/1000 Base-X | Low Voltage isolated 24/48 VDC | High Voltage 110/220V DC/AC | 變電站 IEC61850-3 | 鐵道交通 EN50121-4 | 安全 UL60950-1 | CE, FCC |
| IPS-G803SM-LL | V | 11 | 8 | 3 SFP | 2 | — | V | V | V | V |
| IPS-G803SM-HL | V | 11 | 8 | 3 SFP | 2 | 1 | V | V | V | V |

型號命名規則

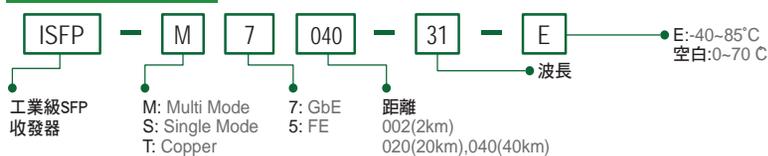


選購配件

| | |
|-----------|---------------------------------------------------------------------|
| 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 |
| MDR-60-24 | Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 60W, -20 ~ +70°C |

SFP 收發器 Compatible, Reliable, 5-year Warranty

SFP命名規則



NEW



IPS-803GSM

IEC 61850-3 8x10/100Base-TX+
3x100/1000Base-X SFP



此IPS-803GSM 管理型百兆乙太網交換器系列是為滿足變電站系統的需求所設計，並通過IEC 61850-3和IEEE 1613認證。本交換器具備許多備援功能，能增加您通訊系統的可靠性，包括備援及獨立電源供應器(24/48 VDC和110/220 VDC/VAC)、STP/RSTP/MSTP/ITU-T G.8032環形和多重u-環形的備援佈線、第2層乙太網IGMP、VLAN、QoS、Security、IPv6、bandwidth control、port mirroring、Cable diagnostic 和節能乙太網。此交換器具備堅固機體及DIN軌道式或壁掛式安裝，專為變電站網路等嚴苛環境所設計。本系列產品可使用CTC Union的SmartView™ 管理系統以方便進行集中式的管理。

功能特色

- 8 個 10/100Base-TX RJ-45 和 3x 100/1000Base-X SFP Fiber
- 通過 UL60950-1、CE、FCC、EN50121-4 認證
- 通過變電站 IEC 61850-3、IEEE1613 認證
- 具雙電源冗餘備援輸入，可供選擇輸入電壓有，低電壓的 isolated 24/48VDC，或高電壓的 isolated AC/DC(110/220 VAC/VDC) 電源
- 寬溫工作範圍 -40 ~ 85°C
- Din Rail 軌道式安裝或壁掛式
- IP30 金屬外殼、無風扇
- 支援 Cable diagnostic，可以診斷網路線故障點，定位線纜的故障點距離
- 支援 IEEE1588 PTP V2 精密時間同步，每個端口都可以選擇以下模式操作：Master, Boundary, Slave mode
- 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 Switching(ERPS), and u-Ring 可用於網路佈線備援
- 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(圖2)
- u-Ring 冗餘乙太網環網，在最多 250 個裝置時，恢復時間 <10ms
- 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 RMON、MIB II、Private MIB、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，以方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) IEEE 802.1Q for VLAN Tagging 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) IEEE802.3x Flow Control and Back Pressure ITU-T G.8032/ Y.1344 ERPS (Ethernet Ring Protection Switching) 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) |
| 交換架構 | Back-plane (Switching Fabric): 7.6 Gbps |
| Data Processing | Store and Forward |
| Flow Control | IEEE 802.3x flow control, back pressure flow control |
| Jumbo Frame | 9.6KB |
| MAC Address Table | 8K |
| Memory Buffer | 256K Bytes for packet buffer |

| 網路連接器 | 8個10/100Base-TX RJ-45 auto negotiation speed 自動 MDI/MDI-X 功能, 全/半雙工 3個 100/1000Base-X 雙速 mode SFP slot, with DDMI | | | | | | | | | | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------|--------|-------|--------|-----|-------|-----|-------|-------|
| Console | RS-232 (RJ-45) | | | | | | | | | | |
| 網路線規格 | UTP/STP above 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), Fault (琥珀色), (-LL model) Power 1 (綠), Power 2 (綠), Power 3 (綠), Fault (琥珀色), (-HL model) 每RJ-45端口: Link/Act(綠) 每SFP Fiber 端口: Link/Active(綠) | | | | | | | | | | |
| 電壓極性保護 | 電源輸入時提供 | | | | | | | | | | |
| 電流過載保護 | 提供 | | | | | | | | | | |
| CPU Watch Dog | 提供 | | | | | | | | | | |
| 電源輸入 | 配備2個獨立低電壓DC輸入冗於備援 (-LL model) 配備2個獨立低電壓DC輸入冗於備援及1個高電壓AC/DC電源輸入 (-HL model) 獨立低電壓DC: 獨立24/48V (18~72VDC), 可拔插式配接器 高電壓 AC/DC: 獨立110/220VAC (88VAC~264VAC) 或 110/220VDC (85~300VDC), 可拔插式配接器 | | | | | | | | | | |
| 耗電量 | <table border="1"> <thead> <tr> <th>輸入電壓</th> <th>IPS-803GSM</th> </tr> </thead> <tbody> <tr> <td>110VAC</td> <td>7.3 W</td> </tr> <tr> <td>220VAC</td> <td>7 W</td> </tr> <tr> <td>24VDC</td> <td>8 W</td> </tr> <tr> <td>48VDC</td> <td>9.2 W</td> </tr> </tbody> </table> | 輸入電壓 | IPS-803GSM | 110VAC | 7.3 W | 220VAC | 7 W | 24VDC | 8 W | 48VDC | 9.2 W |
| 輸入電壓 | IPS-803GSM | | | | | | | | | | |
| 110VAC | 7.3 W | | | | | | | | | | |
| 220VAC | 7 W | | | | | | | | | | |
| 24VDC | 8 W | | | | | | | | | | |
| 48VDC | 9.2 W | | | | | | | | | | |
| 告警繼電器規格 | Relay outputs with current carrying capacity of 1 A @24VDC | | | | | | | | | | |

| | |
|---------|-----------------------------------------------------------------------------------------------------|
| 可插拔式配接器 | 配備2個低電壓備援輸入電源，一個告警繼電器(6Pin) (-LL model) 配備2個低電壓備援輸入電源，一個告警繼電器(6Pin)及一個高電壓輸入電源(2 Pin) (-HL model) |
| 工作溫度 | -40°C~85°C |
| 工作濕度 | 5% to 95% (無冷凝) |
| 儲存溫度 | -40°C~85°C |
| 外殼 | 金屬外殼, IP30防護、無風扇 |
| 尺寸 | 106x82x152mm (D x W x H) |
| 重量 | 0.885公斤 (IPS-803GSM-LL) 1.085公斤 (IPS-803GSM-HL) |
| 安裝方式 | Din Rail 軌道式安裝或壁掛式 |
| 產品保固 | 5年 |
| 認證 | |
| EMC/EMS | CE, FCC |

軟體規格

| | |
|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Topology | |
| VLAN | IEEE 802.1q VLAN, up to 4094 ID IEEE 802.1q VLAN, up to 4094 Groups IEEE 802.1ad Q-in-Q MAC-based VLAN, up to 256 entries IP Subnet-based VLAN, up to 128 entries Protocol-based VLAN (Ethernet, SNAP, LLC), up to 128 entries VLAN Translation, up to 256 entries MVR (Multiple VLAN Registration) GVRP (GARP VLAN Registration Protocol) |
| 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 (參見圖2, 圖4) 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 |
| Classification 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 Feature | |
| IGMP / MLD Snooping | IGMP Snooping v1, v2, v3 / MLD Snooping v1, v2 support 1022 IGMP groups Port Filtering Profile Throttling Fast Leave Maximum Multicast Group : up to 1022 entries Query / Static Router Port |
| Security Features | |
| IEEE 802.1X | Port-Based MAC-Based |

| | |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EMI | FCC Part 15 Subpart B Class A EN 55022 Class A |
| EMS 抗電磁干擾等級 | EN61000-4-2 (ESD) Level 4, Criteria B EN61000-4-3 (RS) Level 4, Criteria A EN61000-4-4 (EFT) Level 4, Criteria A EN61000-4-5 (Surge) Level 4, Criteria B EN61000-4-6 (CS) Level 4, Criteria A EN61000-4-8 (Magnetic Field) Level 5, Criteria A |
| Safety | UL60950-1 |
| 變電站 | IEC 61850-3, IEEE 1613 |
| 軌道交通 | EN50121-4 |
| 防撞擊 | IEC 60068-2-27 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC 60068-2-6 |

| | |
|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| 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 Authentication | Remote Authentication (via RADIUS/ TACACS+) |
| Management Interface Access | |
| Web, Telnet / SSH , CLI RS-232 console | |
| Filtering | |
| Management Features | |
| CLI | Cisco® like CLI |
| Web Based Management | |
| Telnet | Server |
| SNMP | V1, V2c, V3 |
| SW & Configuration Upgrade | TFTP, HTTP 有備援軟體以防止程式升級失敗 |
| RMON | RMON I (1, 2, 3, 9 group), RMON II |
| MIB | MIB II RFC1213, Private MIB |
| 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, SMTP/ e-mail event message, 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 Features | |
| 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

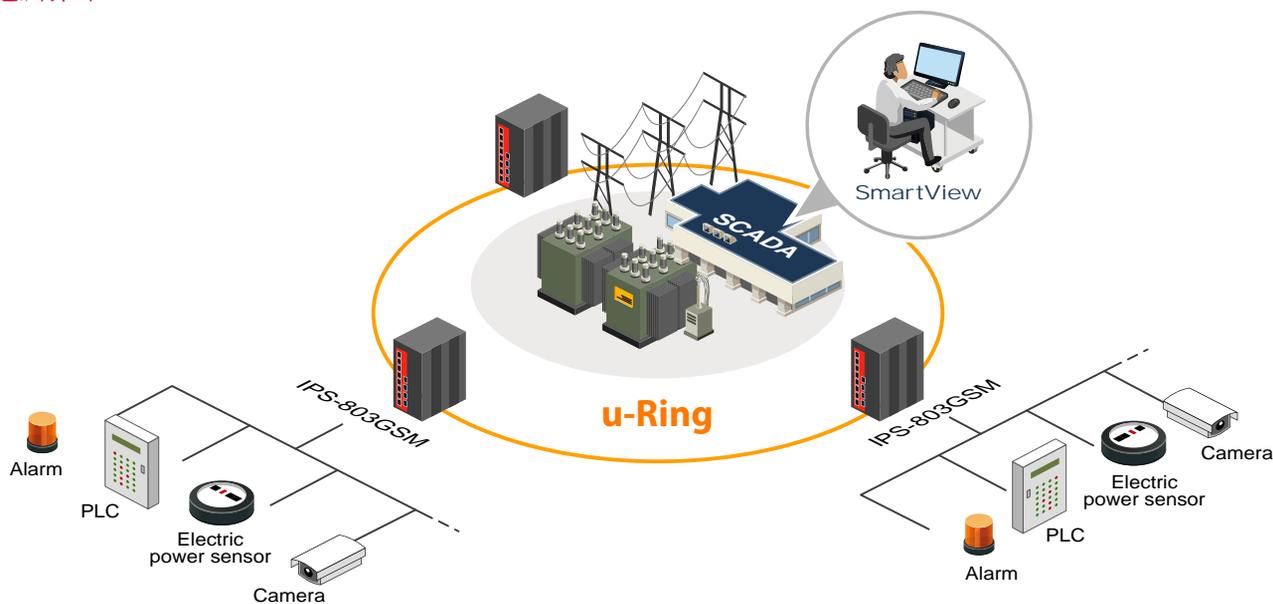


圖1：IPS Series in Power Substation Application

4 IEC 61850-3 Managed FE Switch

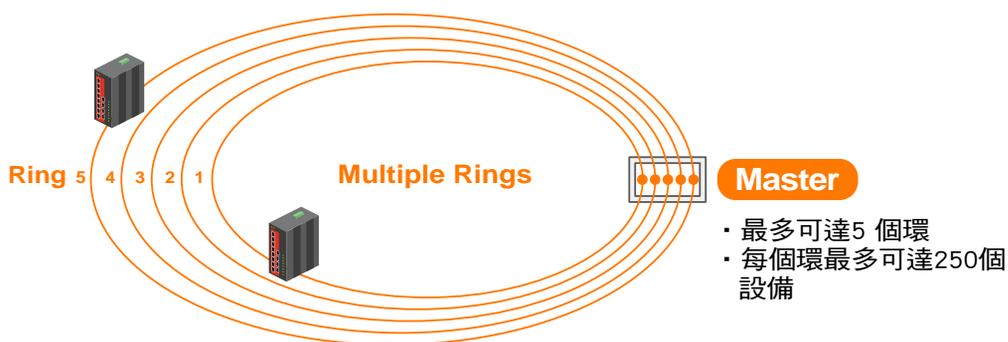


圖2：Multiple Rings

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"/> |

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

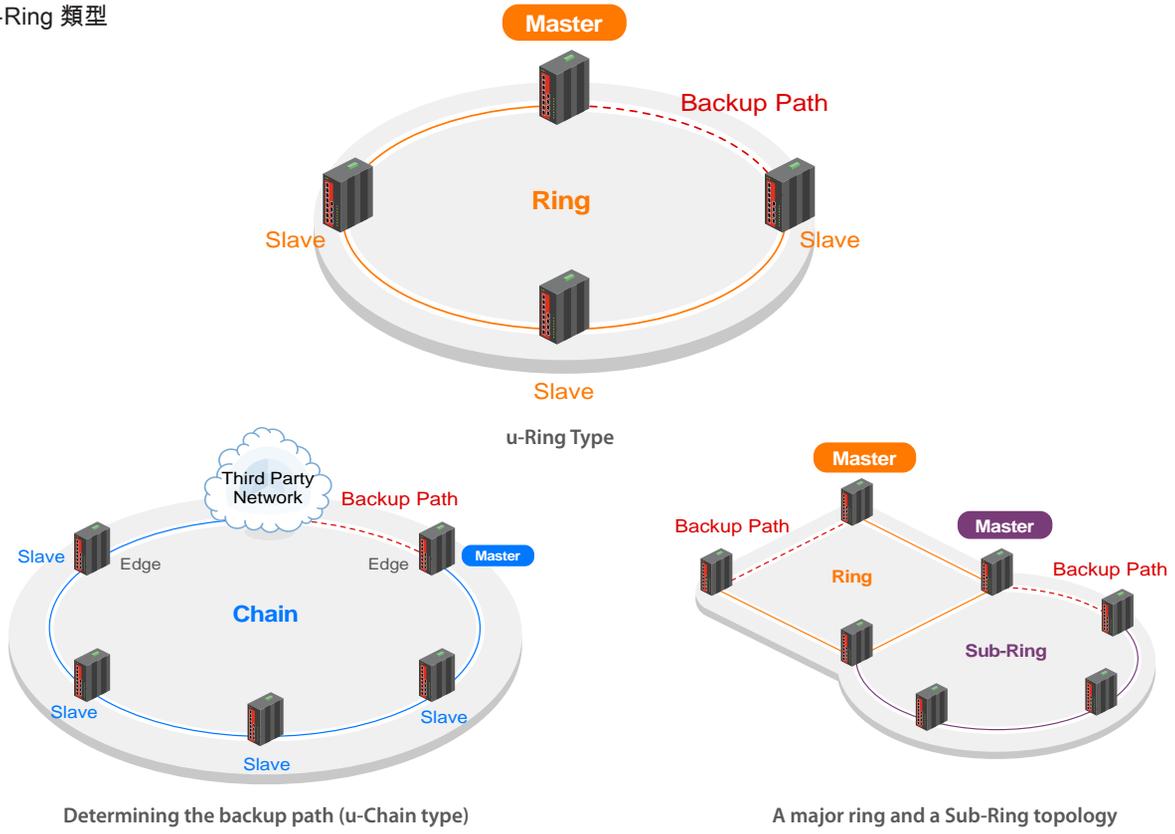
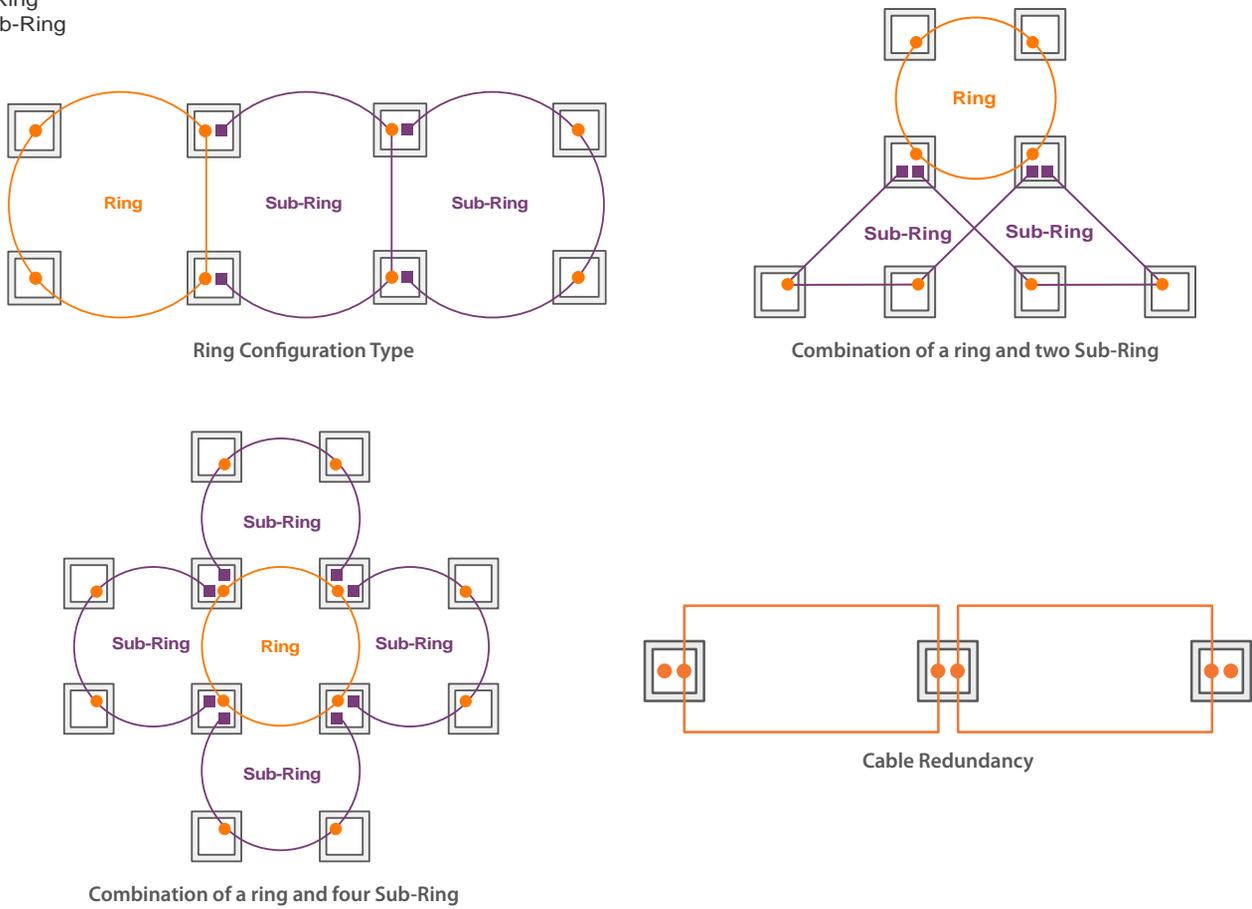
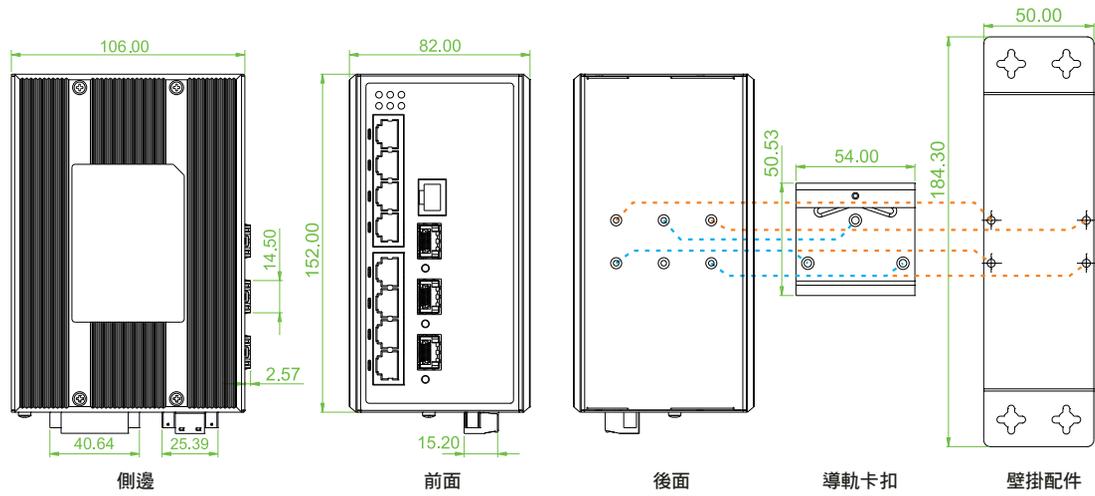


圖5：Ring 配置範例

● u-Ring
■ Sub-Ring



機構尺寸

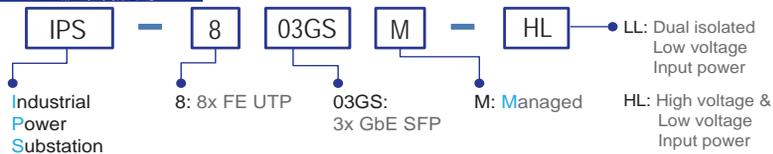


4 IEC 61850-3 Managed FE Switch

訂購資訊

| 型號 | 管理 | 總埠數 | UTP Port | | 光纖 | | 輸入電壓 | | 認證 | | |
|---------------|----|-----|----------------|-----------------|--------------------------------|-----------------------------|----------------|----------------|--------------|---------|--|
| | | | 10/100 Base-TX | 100/1000 Base-X | Low Voltage isolated 24/48 VDC | High Voltage 110/220V DC/AC | 變電站 IEC61850-3 | 鐵道交通 EN50121-4 | 安全 UL60950-1 | CE, FCC | |
| IPS-803GSM-LL | V | 11 | 8 | 3 SFP | 2 | — | V | V | V | V | |
| IPS-803GSM-HL | V | 11 | 8 | 3 SFP | 2 | 1 | V | V | V | V | |

型號命名規則

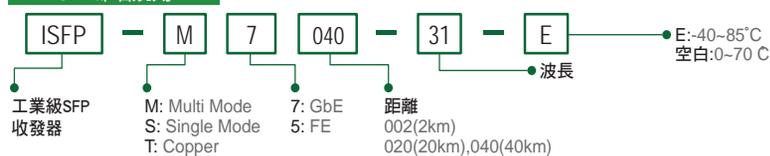


選購配件

| | |
|-----------|---------------------------------------------------------------------|
| 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 |
| MDR-60-24 | Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 60W, -20 ~ +70°C |

SFP 收發器
Compatible, Reliable, 5-year Warranty

SFP命名規則



工業級 PoE 交換機

為 IP 監控設備，提供穩定暨簡化維護的 PoE 輸出電源

PoE輸出電壓的升壓與穩壓

PoE 設備自動檢測&自動重啟

PoE 設備(IP Cam) 開啟/關機週排程

支援快速且便利的設定工具 SmartView™

支援 SmartConfig™ 快速且便利的設定

最多可達5個環網的u-Ring, Sub-Ring, u-Chain 冗餘備援乙太網環網

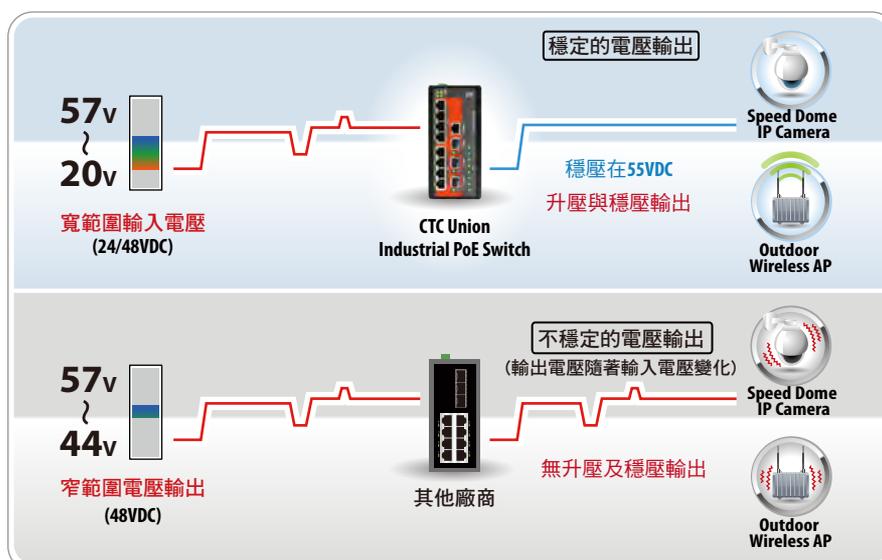


乙太網供電(PoE)功能可透過標準雙絞線乙太網纜線，對監視攝影機或無線基地台等PD裝置供電，進而免除PD裝置的外部電源需求。CTC Union提供各種不同的PoE產品，從交換機、光電轉換器到管理型交換器等，可滿足各種不同的應用需求。所有PoE機種皆為無風扇設計，並採用堅固的IP30外殼，並提供軌道(Din Rail) 或壁掛安裝方式。此外，PoE機種支援IEEE 802.3af/802.3at標準，每個端口最多能提供30W。我們的高效率升壓技術可針對輸入範圍(20~57VDC) 電源，升壓及穩壓至55V的PoE 穩定輸出，為IP 監控設備，提供穩定可靠的 PoE 輸出電源。

高效率升壓及穩壓功能

一般電源可能有不穩定電壓或達不到 PoE 要求的規範 (IEEE802.3at: 50~57VDC, IEEE802.3af: 44~57VDC) 時，都會導致 PoE PD 裝置不正常或毀損。CTC Union PoE 產品，提供升壓及穩壓功能，並具下列特點：

1. 在寬範圍的輸入電源 20~57VDC 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%，因升壓效率高，可提供高達 180W 的 PoE 供電。



遠端 PoE PD 設備自動偵測及重啟

以下圖示遠端PoE PD 自動偵測及重啟。此功能可以省去很多人員現場檢查及處理的成本，以減少營運費用。



PoE PD 自動偵測與重啟

開啟 / 關閉 PoE 周排程

可依據實際應用需求提供規劃每週的PoE開啟/關閉排程功能，就可以依據規劃的週期，定時地對各端口的PoE PD 設備自動開機或關機。

| Scheduling | | SUN. | MON. | TUE. | WED. | THU. | FRI. | SAT. |
|------------|--|------|------|------|------|------|------|------|
| Port 1 | | ON | OFF | OFF | ON | ON | ON | OFF |
| 08:00 | | ON | OFF | OFF | ON | ON | ON | OFF |
| 08:30 | | ON | OFF | OFF | ON | ON | ON | OFF |
| 09:00 | | ON | OFF | OFF | ON | ON | ON | OFF |
| 09:30 | | ON | OFF | OFF | ON | ON | ON | OFF |
| 10:00 | | ON | OFF | ON | ON | ON | ON | OFF |
| 10:30 | | ON | OFF | ON | ON | ON | ON | OFF |
| 11:00 | | OFF | ON | ON | ON | OFF | OFF | OFF |
| 11:30 | | OFF | ON | ON | OFF | OFF | OFF | ON |
| 12:00 | | OFF | ON | ON | OFF | OFF | OFF | ON |
| 12:30 | | OFF | ON | ON | OFF | OFF | OFF | ON |
| 13:00 | | OFF | ON | ON | OFF | OFF | OFF | ON |
| 13:30 | | OFF | ON | ON | OFF | OFF | OFF | ON |
| 14:00 | | OFF | ON | ON | OFF | OFF | OFF | ON |

各種應用場所





120 Watts,
24V Booster



IGS-402S-4PH24

4x 10/100/1000Base-T and 2x100/1000Base-X SFP with 4x PoE+

IGS-401F-4PH24

4x 10/100/1000Base-T and 1x 1000Base-X Fiber with 4x PoE+

IGS-402F-4PH24

4x 10/100/1000Base-T and 2x 1000Base-X Fiber with 4x PoE+

IGS-600-4PH24

6x 10/100/1000Base-T with 4x PoE+

此系列產品為5~6個非網管型工業級千兆PoE交換器，支援4個 10/100/1000Base-T的 PoE 以提供穩定可靠的乙太網傳輸。搭配堅固的Din Rail 軌道式或壁掛安裝外殼，此產品專為惡劣環境，如工業網路、安全自動化應用、交通監控、安防自動化應用、IP surveillance、城市安防及智能交通系統（ITS），也適用於許多環境條件超出一般商規產品規格的軍事和公用事業的市場應用中。此系列產品也能達到標準工作溫度範圍（-10~60°C）及寬工作溫度範圍（-40~75°C）以滿足工業自動化特殊應用的需求。

功能特色

- 提供4個IEEE802.3af / 802.3at PoE埠 (輸出功率30W/每埠)
- PoE 最大輸出總功率達 120 瓦
- 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
- 寬溫工作範圍 (-40 ~ 75°C) “E” 系列產品
- 通過 UL60950-1，CE，FCC，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
- 金屬外殼、IP30 防護、無風扇

產品規格

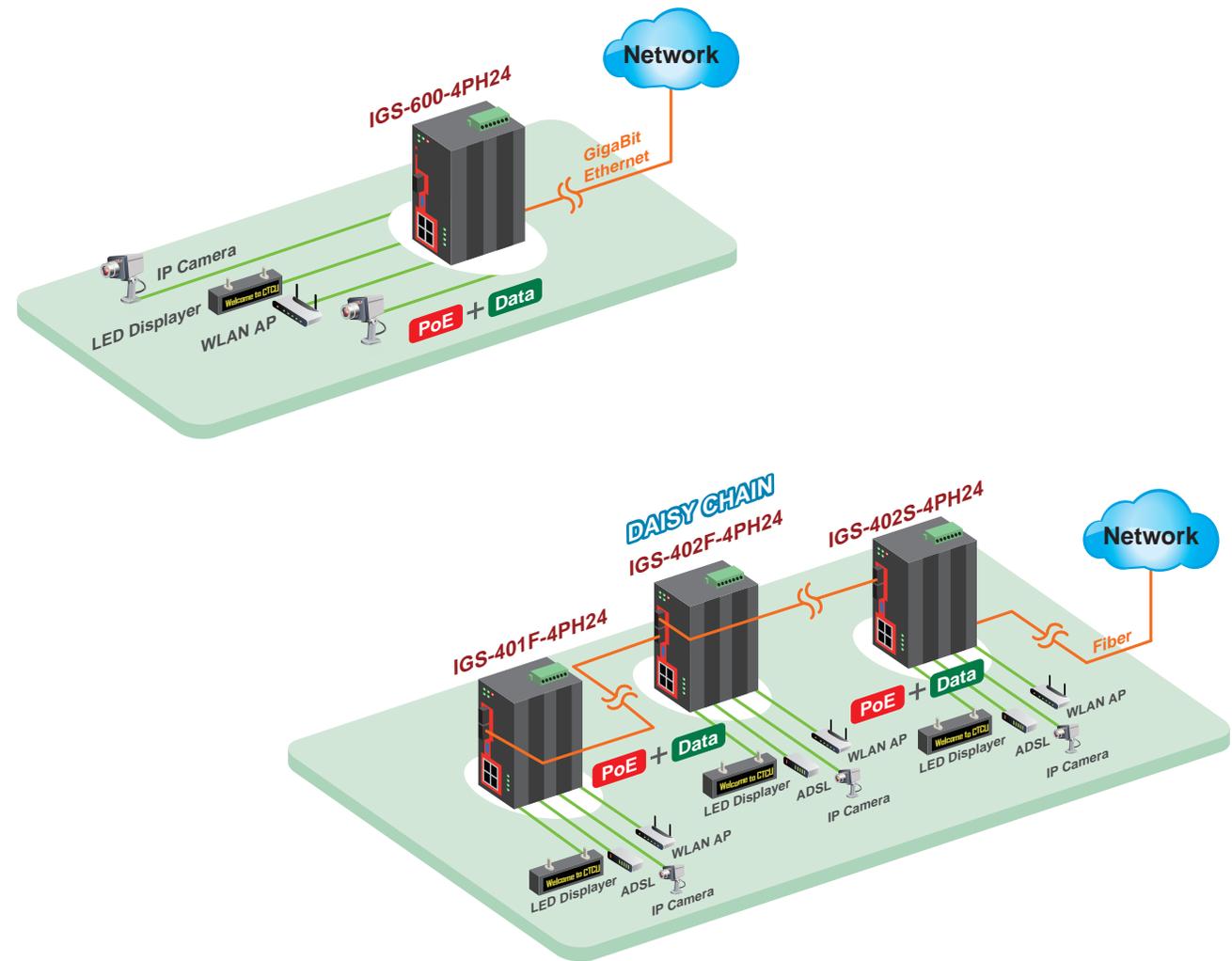
| | |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 符合標準 | IEEE 802.3 10Base-T 10 Ethernet IEEE 802.3u 100Base-TX Fast Ethernet IEEE 802.3ab 1000Base-T Gigabit Ethernet IEEE 802.3z 1000Base-X Gigabit Ethernet IEEE 802.3x Flow Control and Back Pressure IEEE 802.3at, IEEE802.3af |
| Switch Architecture | Back-plane (Switching Fabric): 10Gbps (IGS-401F- 4PH24) 12Gbps (IGS-402S- 4PH24, IGS-402F-4PH24, IGS-600-4PH24) |
| Data Processing | Store and Forward |
| Flow Control | IEEE 802.3x flow control (全雙工), back pressure (半雙工) |
| Provides Broadcast Storm Protection | 提供, Enable/Disable by DIP SW |
| Jumbo Frame | 10K Bytes |
| MAC Address Table | 8K |
| Packet Buffer Size | 1Mbits |
| PoE標準 | IEEE 802.3at/af |
| PoE RJ-45 Pin 腳定義 | RJ-45 port #1~#4 support IEEE 802.3at/af End-Span, Alternative A mode. V+ : RJ-45 pin 1, 2. V- : RJ-45 pin 3, 6. Data (1, 2, 3, 6, 4, 5, 7, 8) |
| 網路連接器 | 4 個RJ-45電口(IGS-402S-4PH24, IGS-401F-4PH24, IGS-402F-4PH24) 6 個RJ-45電口(IGS-600-4PH24) 10/100/1000Bsa-e-T自動協商、自動MDI/ MDI-X等功能, 全/半雙工 2個100/1000Bsa-e-X SFP (IGS-402S-4PH24) 1或2個1000Base-X Fiber Connector: SC Multi Mode or Single Mode (IGS-401F-4PH24, IGS-402F-4PH24) |
| 網路線規格 | UTP/STP above Cat. 5e cable EIA/TIA-568 100-ohm (100m) Fiber Cable (Multi-mode): 50/125um, 62.5/125um Fiber Cable (Single-mode): 9/125um |
| 通訊協議 | CSMA/CD |

| LED指示燈 | Power 1 (綠), Power 2 (綠), 故障 (琥珀色) RJ-45 連接埠: Link/Active(綠), 速度10(無燈號), 100(綠), 1000(黃) 光纖埠per Port: Link/Active(綠) PoE連接埠LED, LED /per Port: • 啟動: ON • 關閉: OFF • 故障: 閃爍 (過載、短路、端口啟動失敗) | | | | | | | | | | | | | | | |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|----------------|----------------|---------------|-------|--------|--------|--------|--------|-------|--------|--------|--------|--------|
| DIP SW | DIP 1 ON: Disable power failure alarm OFF: Enable power failure alarm DIP 2 ON: Disables broadcast storm protection OFF: Enables broadcast storm protection ON: Fiber 2 for 100Base-FX SFP DIP 3 OFF: Fiber 2 for Gigabit SFP (限IGS-402S-4PH24) ON: Fiber 1 for 100Base-FX-SFP DIP 4 OFF: Fiber 1 for Gigabit SFP (限IGS-402S-4PH24) | | | | | | | | | | | | | | | |
| 電壓極性保護 | 提供 | | | | | | | | | | | | | | | |
| 電流過載保護 | 提供 | | | | | | | | | | | | | | | |
| 電源供應 | 雙DC電源輸入24/48V(20~57VDC)冗餘備援 (可拔插式配接器) | | | | | | | | | | | | | | | |
| 耗電量 | <table border="1"> <thead> <tr> <th>輸入電壓</th> <th>IGS-402S-4PH24</th> <th>IGS-401F-4PH24</th> <th>IGS-402F-4PH24</th> <th>IGS-600-4PH24</th> </tr> </thead> <tbody> <tr> <td>24VDC</td> <td>143.3W</td> <td>142.1W</td> <td>143.2W</td> <td>142.9W</td> </tr> <tr> <td>48VDC</td> <td>138.2W</td> <td>137.4W</td> <td>138.2W</td> <td>139.6W</td> </tr> </tbody> </table> | 輸入電壓 | IGS-402S-4PH24 | IGS-401F-4PH24 | IGS-402F-4PH24 | IGS-600-4PH24 | 24VDC | 143.3W | 142.1W | 143.2W | 142.9W | 48VDC | 138.2W | 137.4W | 138.2W | 139.6W |
| 輸入電壓 | IGS-402S-4PH24 | IGS-401F-4PH24 | IGS-402F-4PH24 | IGS-600-4PH24 | | | | | | | | | | | | |
| 24VDC | 143.3W | 142.1W | 143.2W | 142.9W | | | | | | | | | | | | |
| 48VDC | 138.2W | 137.4W | 138.2W | 139.6W | | | | | | | | | | | | |
| PoE 電源輸出功率 | 最大PoE電源輸出功率為120W(30W/每端口) | | | | | | | | | | | | | | | |
| 告警繼電器規格 | Relay outputs with current carrying capacity of 1A @24VDC | | | | | | | | | | | | | | | |
| 可插拔式配接器 | 提供一個6針可拔插式配接器。內含2個備援輸入電源，一個告警繼電器 | | | | | | | | | | | | | | | |
| 工作溫度 | -10 ~ 60°C (IGS-402S-4PH24, IGS-401F-4PH24, IGS-402F-4PH24, IGS-600-4PH24) -40 ~ 75°C (IGS-402S-4PHE24, IGS-401F-4PHE24, IGS-402F-4PHE24, IGS-600-4PHE24) | | | | | | | | | | | | | | | |
| 工作濕度 | 5% to 95% (無冷凝) | | | | | | | | | | | | | | | |
| 儲存溫度 | -40~85°C | | | | | | | | | | | | | | | |
| 外殼 | 金屬外殼、IP30防護、無風扇 | | | | | | | | | | | | | | | |

| | |
|------|-----------------------------------------------------------------------------------------------------------------------------------|
| 尺寸 | 106x 62.5x 134.8mm (DxWxH) |
| 重量 | 0.84公斤(IGS-402S-4PH24) 0.67公斤(IGS-401F-4PH24) 0.68公斤(IGS-402F-4PH24) 0.84公斤(IGS-600-4PH24) |
| 安裝方式 | Din Rail 軌道式安裝或壁掛式 |
| MTBF | 334,448小時(IGS-402S-4PH24) 316,408小時(IGS-401F-4PH24) 306,704小時(IGS-402F-4PH24) 296,517小時(IGS-600-4PH24) (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 | EN50121-4 |
| 重工業環 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 |
| 防撞擊 | IEC 60068-2-27 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC 60068-2-6 |

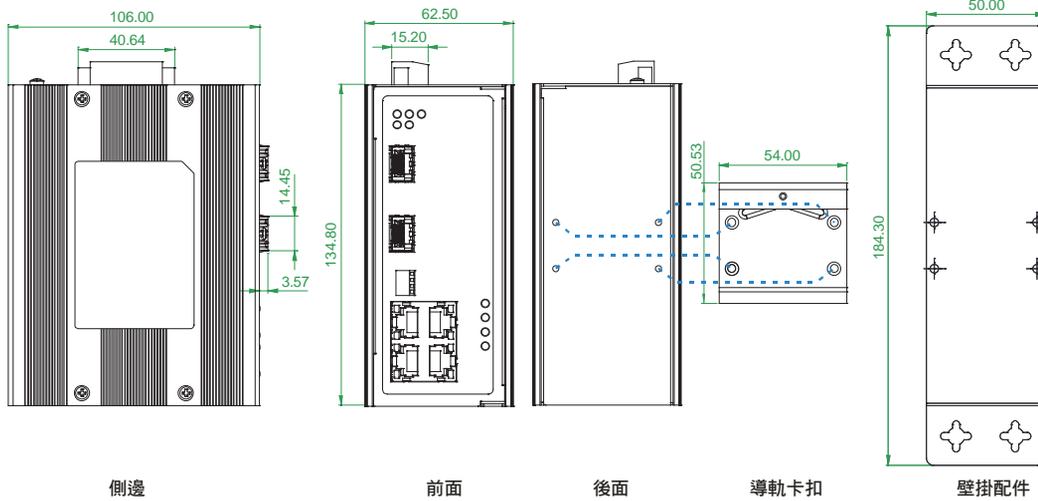
應用圖



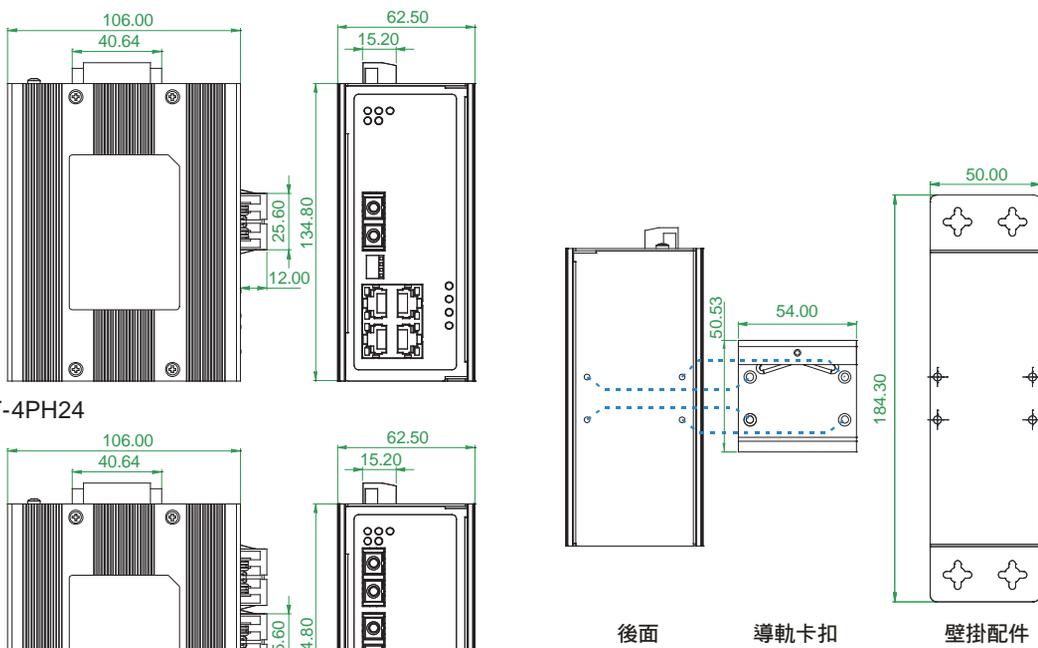
圖例 : IGS-402S-4PH24, IGS-401F-4PH24, IGS-402F-4PH24, IGS-600-4PH24
PoE Gigabit Ethernet Switch Transmission

機構尺寸

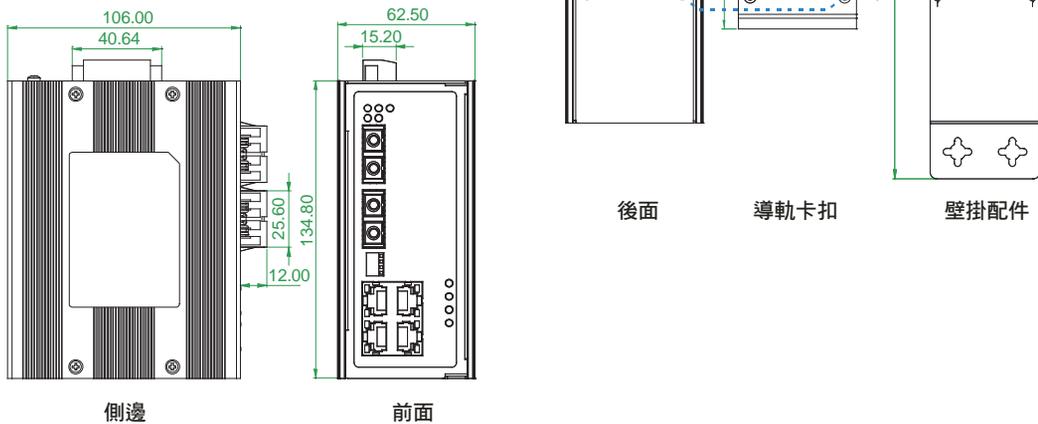
IGS-402S-4PH24



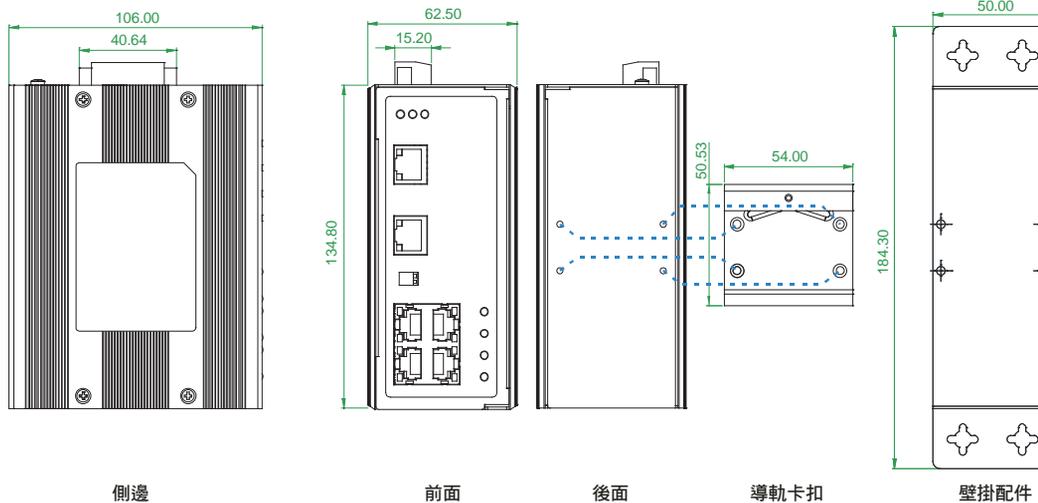
IGS-401F-4PH24



IGS-402F-4PH24



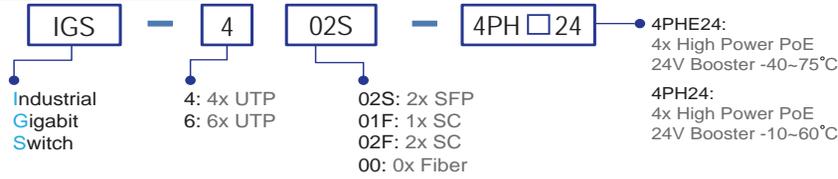
IGS-600-4PH24



訂購資訊

| 型號 | 總埠數 | 光纖 | | | 認證 | | | | 操作溫度 |
|-----------------|-----|-----------------------|-------------|-----------------|----------------|--------------|-------------------------|---------|----------|
| | | 10/100/1000 Base-T(X) | 1000 Base-X | 100/1000 Base-X | 鐵道交通 EN50121-4 | 安全 UL60950-1 | EN61000-6-2 EN61000-6-4 | CE, FCC | |
| IGS-402S-4PH24 | 6 | 4 | — | 2 SFP | V | V | V | V | -10~60 C |
| IGS-402S-4PHE24 | 6 | 4 | — | 2 SFP | V | V | V | V | -40~75 C |
| IGS-401F-4PH24 | 5 | 4 | 1 SC | — | V | V | V | V | -10~60 C |
| IGS-401F-4PHE24 | 5 | 4 | 1 SC | — | V | V | V | V | -40~75 C |
| IGS-402F-4PH24 | 6 | 4 | 2 SC | — | V | V | V | V | -10~60 C |
| IGS-402F-4PHE24 | 6 | 4 | 2 SC | — | V | V | V | V | -40~75 C |
| IGS-600-4PH24 | 6 | 6 | — | — | V | V | V | V | -10~60 C |
| IGS-600-4PHE24 | 6 | 6 | — | — | V | V | V | V | -40~75 C |

型號命名規則

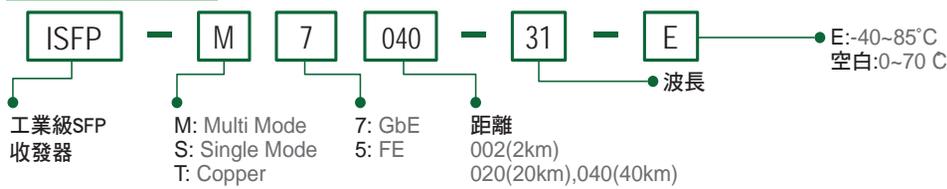


| Fiber Connector Type | Connectivity Distance |
|-------------------------------------------|------------------------------------------------------------------|
| SC | SC001: 500m (SC, M/M) SC002: 2km (SC, M/M) SC020: 20km (SC, S/M) |
| (Only for IGS-401F-4PH24, IGS-402F-4PH24) | SC040: 40km (SC, S/M) |
| | SC020A: WDM 20km A type (TX: 1310nm) |
| | SC020B: WDM 20km B type (TX: 1550nm) |

選購配件

| | |
|------------|-------------------------------------------------------------------------------------|
| DR-120-24 | Industrial Power, Input 88 ~ 132VAC / 176 ~ 264VAC, Output 24VDC, 120W, -10 ~ +60°C |
| DRP-240-48 | Industrial Power, Input 85 ~ 264VAC, Output 48VDC, 240W, -10 ~ +70°C |

SFP命名規則





120 or 180 Watts,
24V Booster



IGS-402SM-4PH24

4x10/100/1000Base-T + 2x100/1000Base-X SFP
with 4xPoE+

IGS-803SM-8PH24

8x10/100/1000Base-T + 3x100/1000Base-X SFP
with 8xPoE+

此系列產品是工業級網管型千兆乙太網PoE（供電型）交換器，具有4/8個10/100/1000Base-T PoE電口和2/3個SFP千兆光口，提供穩定可靠的乙太網線路傳輸。內建雙電源的設計，讓此系列產品可為了始終保持連線的特殊應用提供冗餘備援機制。此系列產品同時也能達到標準工作溫度範圍（-10~60°C）及寬工作溫度範圍（-40~75°C）以滿足工業自動化特殊應用的需求。搭配堅固的Din Rail 軌道式或壁掛安裝外殼，此產品專為惡劣環境，如工業網路、安全自動化應用、交通監控、安防自動化應用、IP surveillance、城市安防及智能交通系統（ITS），也適用於許多環境條件超出一般商規產品規格的軍事和公用事業的市場應用中。

除了特殊設計的外觀及硬體特點之外，此乙太網交換器也支援多種管理功能，其中包括STP/ RSTP / MSTP和ITU-T G.8032，及Multiple u-Ring 冗餘環網，先進的PoE管理功能，可作PoE PD設備自動檢測和自動重啟，PoE PD設備每週供電時間排程，L2 Ethernet IGMP、VLAN、QoS、安全、IPv6、bandwidth control、Port mirroring、電纜診斷和綠色節能乙太網。此外，此系列交換器也可搭配CTC管理平台SmartView™ 使用，以提供網管人員更加便利、即時且集中式的網路管理。

功能特色

- 提供 4 個 10/100/1000Base-T RJ-45 電口 + 2 個 100/1000Base-X SFP 光口，及 4 個 PoE，最大輸出總功率達 120 瓦 (IGS-402SM-4PH24)
- 提供 8 個 10/100/1000Base-T RJ-45 電口 + 3 個 100/1000Base-X SFP 光口，及 8 個 PoE，最大輸出總功率達 180 瓦 (IGS-803SM-8PH24)
- 雙電源輸入 24/48VDC 冗餘備援，內建非常高效率的電壓升壓器 (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 4/8 個 IEEE802.3af / 802.3at PoE 埠 (輸出功率 30W/ 埠)
- 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 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
- 支援網路線路斷線診斷，可以診斷網路線路故障點，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
- 支援 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 (圖四)，最多可設 5 個環網 (圖二)
- u-Ring 冗餘乙太網環網，在最多 250 個裝置時，恢復時間 <10ms
- 支援 DHCP client/Relay/Snooping/Snooping option 82/Relay option 82
- 支援 QoS，Traffic classification QoS，CoS，bandwidth control for Ingress and Egress，Storm Control，DiffServ
- 支援 IEEE802.1q VLAN，Mac based VLAN，IP subnet based VLAN，Protocol based VLAN，VLAN translation，GVRP，MVR
- 支援動態 IEEE 802.3ad LACP Link Aggregation，Static Link Aggregation
- 支援 IGMP snooping V1/V2/V3，IGMP Filtering/Throttling，IGMP query，IGMP proxy reporting，MLD snooping V1/V2
- 安全管制功能：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
- 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，以利於設定大量的設備
- 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 802.3af | PoE (Power over Ethernet) |
| | IEEE 802.3at | PoE+ (Power over Ethernet enhancements) |
| | 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) |

| | |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 交換架構 | 背板 (Switching Fabric): 12Gbps (IGS-402SM-4PH24) 22Gbps (IGS-803SM-8PH24) |
| Data processing | Store and Forward |
| Flow Control | IEEE 802.3x (全雙工), Back pressure (半雙工) |
| 網路連接器 | 4 個 10/100/1000Base-T RJ-45 電口 + 2 個 100/1000Base-X SFP 連接器 (IGS-402SM-4PH24) 8 個 10/100/1000Base-T RJ-45 電口 + 3 個 100/1000Base-X SFP 連接器 (IGS-803SM-8PH24) RJ-45 UTP 端口支援自動協商、自動MDI/ MDI-X等功能，SFP 端口使用DDMI支援雙速100/1000M |
| Console | RS-232 (RJ-45) |
| PoE RJ-45Pin 腳定義 | 4x IEEE 802.3af /IEEE 802.3at PoE+ (IGS-402SM-4PH24) 8x IEEE 802.3af /IEEE 802.3at PoE+ (IGS-803SM-8PH24) End-Span, Alternative A mode. V+ : RJ-45 pin 1, 2. V- : RJ-45 pin 3, 6. Data (1,2,3,6,4,5,7,8) |
| 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 |

| 電源供應 | 雙電源輸入24/48VDC (20~57VDC)冗餘備援 內置高效率電源升壓器(94~97%)供給PoE輸出穩定的55VDC 電壓 | | | | | | | | | | | | | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------|----------|----------|-------|--------|--------|------|------|-------|--------|--------|------|------|-------|
| 耗電量 | IGS-402SM-4PH24 Power consumption & Booser efficiency | | | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th>輸入電壓</th> <th>總電源消耗</th> <th>設備消耗功率</th> <th>PoE 最大功率</th> <th>升壓效率</th> </tr> </thead> <tbody> <tr> <td>24VDC</td> <td>135.2W</td> <td>7.5W</td> <td>120W</td> <td>94.0%</td> </tr> <tr> <td>48VDC</td> <td>132.5W</td> <td>9W</td> <td>120W</td> <td>97.2%</td> </tr> </tbody> </table> | 輸入電壓 | 總電源消耗 | 設備消耗功率 | PoE 最大功率 | 升壓效率 | 24VDC | 135.2W | 7.5W | 120W | 94.0% | 48VDC | 132.5W | 9W | 120W | 97.2% |
| | 輸入電壓 | 總電源消耗 | 設備消耗功率 | PoE 最大功率 | 升壓效率 | | | | | | | | | | | |
| | 24VDC | 135.2W | 7.5W | 120W | 94.0% | | | | | | | | | | | |
| 48VDC | 132.5W | 9W | 120W | 97.2% | | | | | | | | | | | | |
| IGS-803SM-8PH24 Power consumption & Booser efficiency | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>輸入電壓</th> <th>總電源消耗</th> <th>設備消耗功率</th> <th>PoE 最大功率</th> <th>升壓效率</th> </tr> </thead> <tbody> <tr> <td>24VDC</td> <td>200.2W</td> <td>9.2W</td> <td>180W</td> <td>94%</td> </tr> <tr> <td>48VDC</td> <td>195.1W</td> <td>9.8W</td> <td>180W</td> <td>97%</td> </tr> </tbody> </table> | 輸入電壓 | 總電源消耗 | 設備消耗功率 | PoE 最大功率 | 升壓效率 | 24VDC | 200.2W | 9.2W | 180W | 94% | 48VDC | 195.1W | 9.8W | 180W | 97% | |
| 輸入電壓 | 總電源消耗 | 設備消耗功率 | PoE 最大功率 | 升壓效率 | | | | | | | | | | | | |
| 24VDC | 200.2W | 9.2W | 180W | 94% | | | | | | | | | | | | |
| 48VDC | 195.1W | 9.8W | 180W | 97% | | | | | | | | | | | | |
| LED指示燈 | Power 1 (綠), Power 2 (綠), Fault (琥珀色) CPU Act(綠), Ring Master (黃) RJ-45 連接埠 :10/100 Link/Active(綠) 1000 Link/Active(琥珀色) SFP光端口 Link/Active(綠) PoE連接埠LED, LED /per Port: • PoE電源輸出: 啟動 (綠) • PoE故障(過載、短路、端口啟動失敗): 閃一次/秒(綠) • PoE輸出關閉: (無燈號) | | | | | | | | | | | | | | | |
| Jumbo Frame | 9.6KB | | | | | | | | | | | | | | | |
| MAC Address Table | 8K | | | | | | | | | | | | | | | |
| Memory Buffer | 256K Bytes for packet buffer | | | | | | | | | | | | | | | |
| 告警訊息 | System Syslog, SMTP/ e-mail event message, alarm relay | | | | | | | | | | | | | | | |
| 告警繼電器規格 | Relay outputs with current carrying capacity of 1 A @24VDC | | | | | | | | | | | | | | | |
| 可插拔式配接器 | Provide 2 redundant power, alarm relay contact, 6 Pin | | | | | | | | | | | | | | | |
| 工作溫度 | -10 ~ 60°C (IGS-402SM-4PH24, IGS-803SM-8PH24) -40 ~ 75°C (IGS-402SM-4PHE24, IGS-803SM-8PHE24) | | | | | | | | | | | | | | | |
| 工作濕度 | 5% to 95% (Non-condensing) | | | | | | | | | | | | | | | |
| 儲存溫度 | -40 ~ 85°C | | | | | | | | | | | | | | | |

| | |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 外殼 | Rugged Metal, IP30 Protection, Fanless |
| 尺寸 | 106 x 62.5 x 135 mm (D x W x H) (IGS-402SM-4PH24) 106 x 72 x 152 mm (D x W x H) (IGS-803SM-8PH24) |
| 重量 | 0.715公斤 (IGS-402SM-4PH24) 0.96公斤 (IGS-803SM-8PH24) |
| 安裝方式 | Din Rail 軌道式安裝或壁掛式 |
| MTBF | 276,161小時 (IGS-402SM-4PH24) 311,376小時 (IGS-803SM-8PH24) (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 | 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 |
| 防撞擊 | IEC 60068-2-27 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC 60068-2-6 |

軟體規格

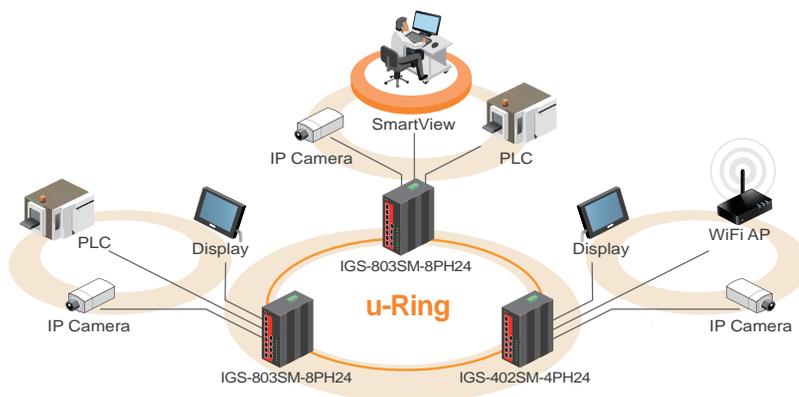
| | |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 拓撲 | |
| 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 (Figure圖 2,3,4,5). 恢復時間 <10ms 每個環最多可達250個設備 |
| Loop Protection | 提供 |
| ITU-T G.8032 / Y.1344 ERPS (乙太網環保護) | 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 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 單位: bit or frame |
| Bandwidth Control for Egress | Rate in steps: 1 kbps / Mbps Range: 100 kbps to 1Gbps 單位: 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 Fast Leave Maximum Multicast Group : up to 1022 entries Query / Static Router Port |
| 安全性 | |
| 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(透過 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 | RFC1213 MIB II, Private MIB |
| 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 |

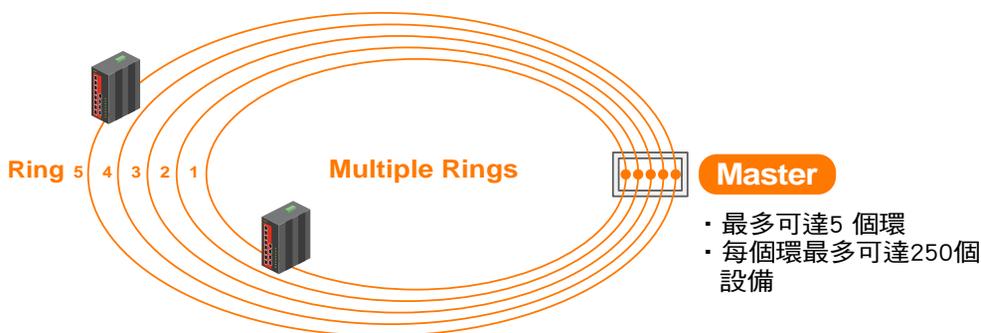
| | |
|-------------------------|----------------------------------------------------------------------------------|
| IEEE1588 PTP V2 | Master, Boundary, Slave Operating mode Operating in each port of these switch |
| NTP / SNTP | |
| LLDP (IEEE 802.1ab) | Link Layer Discovery Protocol LLDP-MED |
| 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 |
| Cable Diagnostic | 偵測網路線的故障點距離 |
| Advanced PoE Management | |
| PoE 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 limitation (maximum 120W for IGS-402SM-4PH24 , 180W for IGS-803SM-8PH24) | |
| 供電優先順序 | |

應用圖



圖一 (應用案例)



圖二 (Multiple u-Ring)

u-Ring Configuration Auto-refresh Refresh

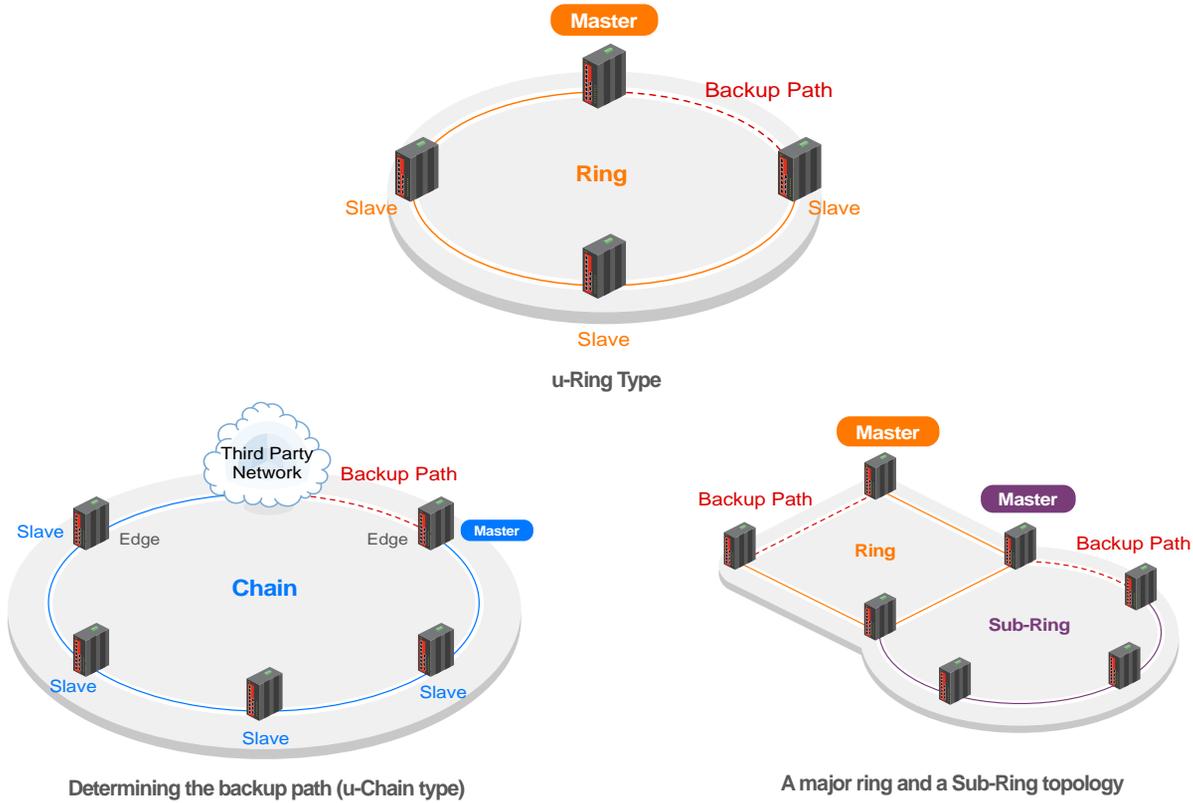
| Delete | Instance | Type | Master | East | | West | |
|--------|----------|----------|--------------------------|-------------|--------------------------|-------------|--------------------------|
| | | | | Port | Edge | Port | Edge |
| Delete | 1 | u-Ring | <input type="checkbox"/> | 1 | | 2 | |
| 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

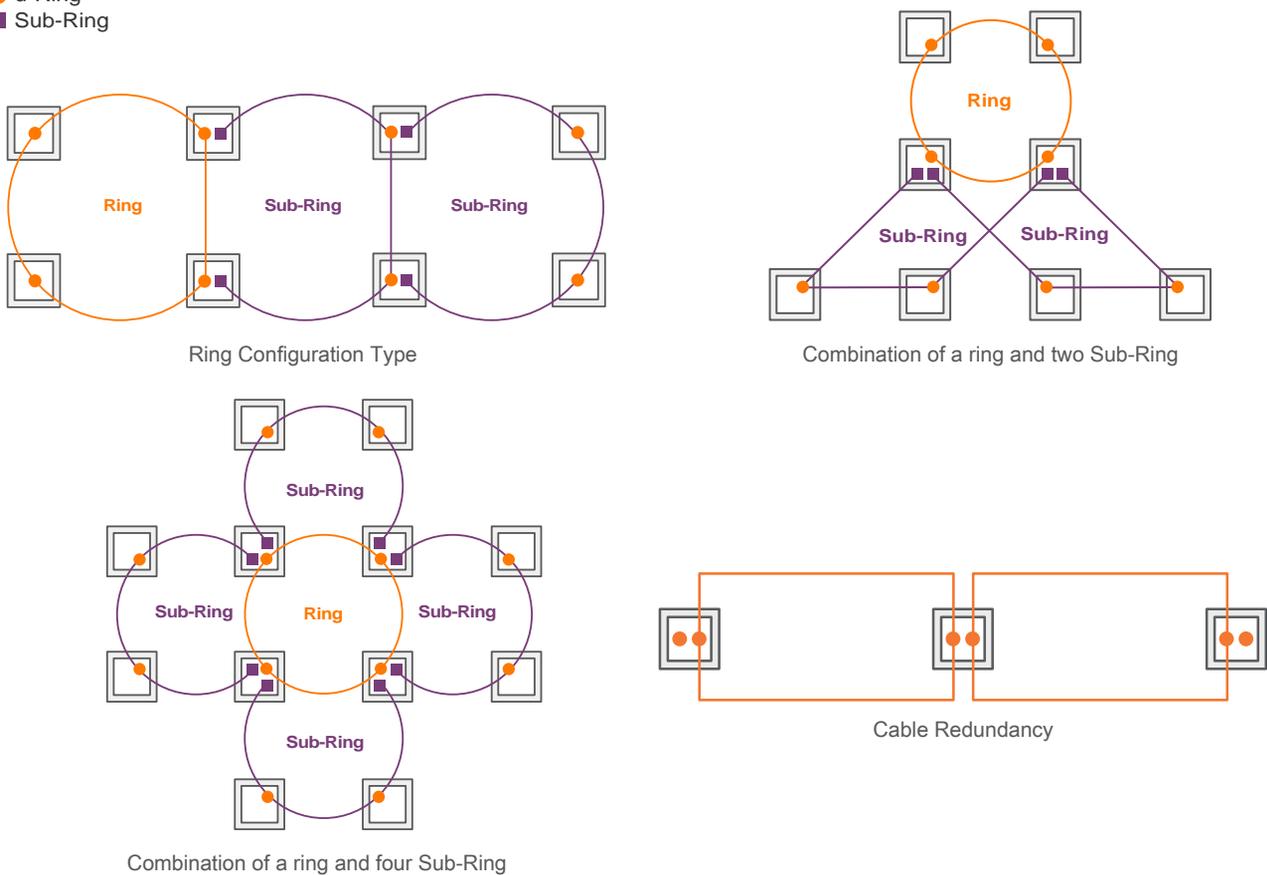
圖三 (方便又容易設定的 u-Ring 功能設定Web 畫面)

圖四 (u-Ring 類型)



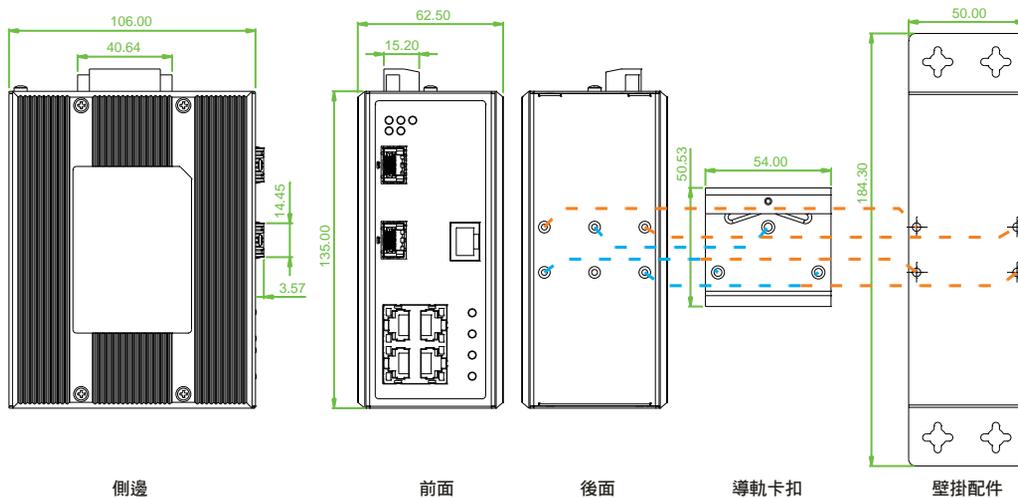
圖五 (Ring 配置範例)

● u-Ring
■ Sub-Ring

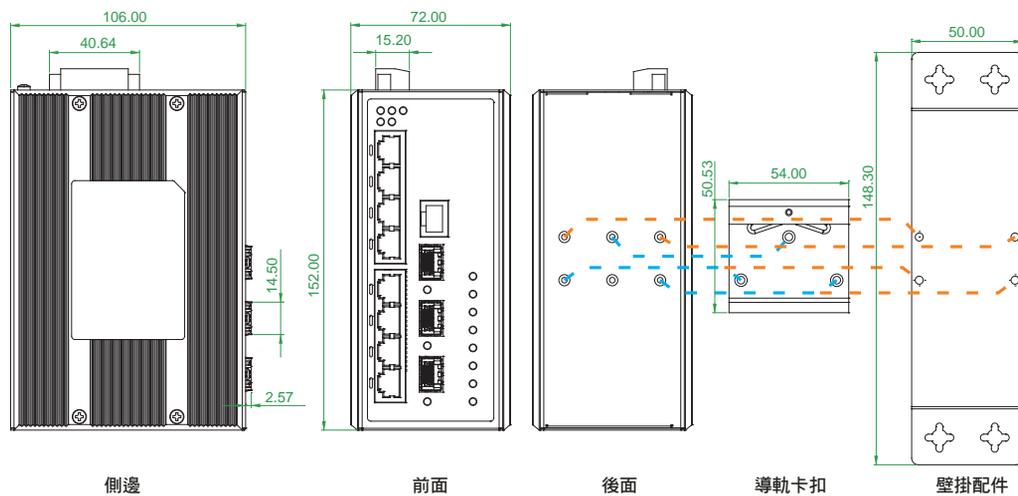


機構尺寸

IGS-402SM-4PH24



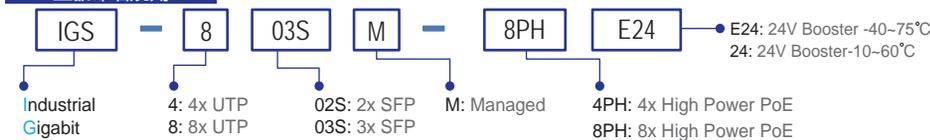
IGS-803SM-8PH24



訂購資訊

| 型號 | 管理 | 總埠數 | UTP | | 光纖 | | PoE埠 | | 認證 | | | 操作溫度 |
|------------------|----|-----|--------------------|-----------------|--------------|--------|----------------|--------------|----------------------------|---------|----------|------|
| | | | 10/100/1000 Base-T | 100/1000 Base-X | IEEE 802.3at | PoE總功率 | 鐵道交通 EN50121-4 | 安全 UL60950-1 | EN61000-6-2 EN61000-6-4 | CE, FCC | | |
| IGS-402SM-4PH24 | V | 6 | 4 | 2 SFP | 4 | 120W | V | V | V | V | -10~60 C | |
| IGS-402SM-4PHE24 | V | 6 | 4 | 2 SFP | 4 | 120W | V | V | V | V | -40~75 C | |
| IGS-803SM-8PH24 | V | 11 | 8 | 3 SFP | 8 | 180W | V | V | V | V | -10~60 C | |
| IGS-803SM-8PHE24 | V | 11 | 8 | 3 SFP | 8 | 180W | V | V | V | V | -40~75 C | |

型號命名規則



選購配件

| | |
|------------|-------------------------------------------------------------------------------------|
| DR-120-24 | Industrial Power, Input 88 ~ 132VAC / 176 ~ 264VAC, Output 24VDC, 120W, -10 ~ +60°C |
| 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





120 or 180 Watts,
24V Booster



IFS-402GSM-4PH24

4x10/100Base-TX + 2x100/1000Base-X SFP with
4xPoE+

IFS-803GSM-8PH24

8x10/100Base-TX + 3x100/1000Base-X SFP with
8xPoE+

此系列產品是工業級網管型百兆乙太網PoE（供電型）交換器，具有4/8個10/100Base-TX PoE電口和2/3個SFP千兆光口，提供穩定可靠的乙太網線路傳輸。內建雙電源的設計，讓此系列產品可為了始終保持連線的特殊應用提供冗餘備援機制。此系列產品同時也能達到標準工作溫度範圍（-10~60°C）及寬工作溫度範圍（-40~75°C）以滿足工業自動化特殊應用的需求。搭配堅固的Din Rail軌道式或壁掛安裝外殼，此產品專為惡劣環境，如工業網路、安全自動化應用、交通監控、安防自動化應用、IP surveillance、城市安防及智能交通系統（ITS），也適用於許多環境條件超出一般商規產品規格的軍事和公用事業的市場應用中。

除了特殊設計的外觀及硬體特點之外，此乙太網交換器也支援多種管理功能，其中包括STP/ RSTP / MSTP和ITU-T G.8032，及Multiple u-Ring冗餘環網，先進的PoE管理功能，可作PoE PD設備自動檢測和自動重啟，PoE PD設備每週供電時間排程，L2 Ethernet IGMP、VLAN、QoS、安全、IPv6、bandwidth control、Port mirroring、電纜診斷和綠色節能乙太網。此外，此系列交換器也可搭配CTC管理平台SmartView™使用，以提供網管人員更加便利、即時且集中式的網路管理。

功能特色

- 提供 4 個 10/100Base-TX RJ-45 電口 + 2 個 100/1000Base-X SFP 光口及 4 個 PoE，最大輸出總功率達 120 瓦 (IFS-402GSM-4PH24)
- 提供 8 個 10/100Base-TX RJ-45 電口 + 3 個 100/1000Base-X SFP 光口及 8 個 PoE，最大輸出總功率達 180 瓦 (IFS-803GSM-8PH24)
- 雙電源輸入 24/48VDC 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 4/8 個 IEEE802.3af / 802.3at PoE 埠 (輸出功率 30W/ 每埠)
- 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”時間周排程，PoE 設定與供電規劃
- 通過 UL60950-1，CE，FCC，鐵道交通 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
- 支援綠色節能乙太網 IEEE802.3az EEE (Energy Efficient Ethernet) Management，優化電源消耗
- 支援 STP，RSTP，MSTP，ITU-T G.8032 Ethernet Ring Protection Switch(EPRS)
- 每台設備可支援 u-Ring，u-Chain 或 Sub-Ring 型態的環網 (圖三)，最多可設 5 個環網 (圖二)
- u-Ring 冗餘乙太網環網，在最多 250 個裝置時，恢復時間 <10ms
- 支援 DHCP client/Relay/Snooping/Snooping option 82/Relay option 82
- 支援 QoS，Traffic classification QoS，CoS，bandwidth control for Ingress and Egress，Storm Control，DiffServ
- 支援 IEEE802.1q VLAN，Mac based VLAN，IP subnet based VLAN，Protocol based VLAN，VLAN translation，GVRP，MVR
- 支援動態 IEEE 802.3ad LACP Link Aggregation，Static Link Aggregation
- 支援 IGMP snooping V1/V2/V3，IGMP Filtering/Throttling，IGMP query，IGMP proxy reporting，MLD snooping V1/V2
- 安全管制功能：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
- 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，以利於設定大量的設備
- 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 802.3af | PoE (Power over Ethernet) |
| | IEEE 802.3at | PoE+ (Power over Ethernet enhancements) |
| | 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) |

| | |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 交換架構 | 背板(switching Fabric): 4.8Gbps (IFS-402GSM-4PH24) 7.6Gbps (IFS-803GSM-8PH24) |
| Data Processing | 儲存轉發(Store and Forward) |
| Flow Control | IEEE 802.3x (全雙工), Back pressure (半雙工) |
| 網路連接器 | 4 個10/100Base-TX RJ-45電口+ 2 個100/1000Base-X SFP 連接器(IFS-402GSM-4PH24) 8 個10/100Base-TX RJ-45電口+ 3 個100/1000Base-X SFP 連接器(IFS-803GSM-8PH24) RJ-45 UTP端口支援自動協商、自動MDI/ MDI-X等功能，SFP端口使用DDMI支援雙速100/1000 |
| Console | RS-232 (RJ-45) |
| PoE RJ-45 Pin 腳定義 | 4x IEEE 802.3af /IEEE 802.3at PoE+ (IFS-402GSM-4PH24) 8x IEEE 802.3af /IEEE 802.3at PoE+ (IFS-803GSM-8PH24) End-Span, Alternative A mode. V+ : RJ-45 pin 1, 2. V- : RJ-45 pin 3, 6. Data (1,2,3,6) |
| 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 | | | | | | | | | | | | | | |
| 電源供應 | 雙電源輸24/48VDC (9.6~60VDC)冗餘備援(可拔插式配接器) 內置高效率電源升壓器(升壓效率達94~97%)供給PoE輸出 穩定的55 VDC電壓 | | | | | | | | | | | | | | |
| 耗電量 | IFS-402GSM-4PH24 耗電量&升壓效率 | | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th>輸入電壓</th> <th>總電源消耗</th> <th>設備消耗功率</th> <th>PoE 最大功率</th> <th>升壓效率</th> </tr> </thead> <tbody> <tr> <td>24VDC</td> <td>134.8W</td> <td>7.1W</td> <td>120W</td> <td>94.0%</td> </tr> <tr> <td>48VDC</td> <td>132.2W</td> <td>8.5W</td> <td>120W</td> <td>97.2%</td> </tr> </tbody> </table> | 輸入電壓 | 總電源消耗 | 設備消耗功率 | PoE 最大功率 | 升壓效率 | 24VDC | 134.8W | 7.1W | 120W | 94.0% | 48VDC | 132.2W | 8.5W | 120W |
| 輸入電壓 | 總電源消耗 | 設備消耗功率 | PoE 最大功率 | 升壓效率 | | | | | | | | | | | |
| 24VDC | 134.8W | 7.1W | 120W | 94.0% | | | | | | | | | | | |
| 48VDC | 132.2W | 8.5W | 120W | 97.2% | | | | | | | | | | | |
| | IFS-803GSM-8PH24 耗電量&升壓效率 | | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th>輸入電壓</th> <th>總電源消耗</th> <th>設備消耗功率</th> <th>PoE 最大功率</th> <th>升壓效率</th> </tr> </thead> <tbody> <tr> <td>24VDC</td> <td>198.3W</td> <td>7.3W</td> <td>180W</td> <td>94%</td> </tr> <tr> <td>48VDC</td> <td>193.2W</td> <td>7.9W</td> <td>180W</td> <td>97%</td> </tr> </tbody> </table> | 輸入電壓 | 總電源消耗 | 設備消耗功率 | PoE 最大功率 | 升壓效率 | 24VDC | 198.3W | 7.3W | 180W | 94% | 48VDC | 193.2W | 7.9W | 180W |
| 輸入電壓 | 總電源消耗 | 設備消耗功率 | PoE 最大功率 | 升壓效率 | | | | | | | | | | | |
| 24VDC | 198.3W | 7.3W | 180W | 94% | | | | | | | | | | | |
| 48VDC | 193.2W | 7.9W | 180W | 97% | | | | | | | | | | | |
| LED指示燈 | Power 1 (綠), Power 2 (綠), Fault (琥珀色), CPU Act(綠), Ring Mater (黃) RJ-45 連接埠: Link/Active(綠) SFP光端口 Link/Active(綠) PoE連接埠LED , LED /per Port : • PoE電源輸出: 啟動 (綠) • PoE故障(過載、短路、端口啟動失敗): 閃一次/秒(綠) • PoE輸出關閉: (無燈號) | | | | | | | | | | | | | | |
| Jumbo Frame | 9.6KB | | | | | | | | | | | | | | |
| MAC Address Table | 8K | | | | | | | | | | | | | | |
| Memory Buffer | 256K Bytes for packet buffer | | | | | | | | | | | | | | |
| 告警訊息 | System Syslog, SMTP/ e-mail event message, alarm relay | | | | | | | | | | | | | | |
| 報警繼電器規格 | Relay outputs with current carrying capacity of 1 A @24VDC | | | | | | | | | | | | | | |
| 可插拔式配接器 | Provide 2 redundant power, alarm relay contact, 6 Pin | | | | | | | | | | | | | | |
| 工作溫度 | -10 ~ 60°C (IFS-402GSM-4PH24, IFS-803GSM-8PH24) -40 ~ 75°C (IFS-402GSM-4PHE24, IFS-803GSM-8PHE24) | | | | | | | | | | | | | | |
| 工作濕度 | 5% to 95% (無冷凝) | | | | | | | | | | | | | | |
| 儲存溫度 | -40 ~ 85°C | | | | | | | | | | | | | | |
| 外殼 | 金屬外殼、IP30防護、無風扇 | | | | | | | | | | | | | | |

| | |
|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 尺寸 | 106 x 62.5 x 135 mm (D x W x H) (IFS-402GSM-4PH24) 106 x 72 x 152 mm (D x W x H) (IFS-803GSM-8PH24) |
| 重量 | 0.715kg (IFS-402GSM-4PH24) 0.96kg (IFS-803GSM-8PH24) |
| 安裝方式 | Din Rail 軌道式安裝或壁掛式 |
| MTBF | 276,161小時 (IFS-402GSM-4PH24) 314,064小時 (IFS-803GSM-8PH24) (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 | EN50121-4 |
| 重工業環境 抗電磁干擾 | EN61000-6-2 |
| 重工業環 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 |
| 防撞擊 | IEC 60068-2-27 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC 60068-2-6 |

軟體規格

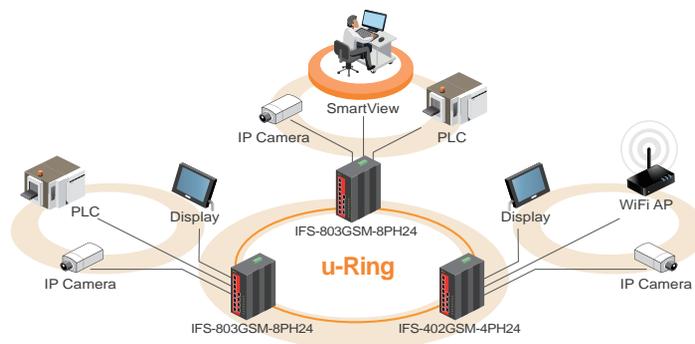
| | |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 拓撲 | |
| 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 (圖2,3,4,5). 恢復時間 <10ms 每個環最多可達250設備 |
| Loop Protection | 提供 |
| ITU-T G.8032 / Y.1344 ERPS (乙太網環保護) | 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 單位 : bit or frame |

| | |
|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bandwidth Control for Egress | Rate in steps : 1 kbps / Mbps Range : 100 kbps to 1Gbps 單位 : 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 Fast Leave Maximum Multicast Group : up to 1022 entries Query / Static Router Port |
| 安全性 | |
| 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(透過 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 | RFC1213 MIB II, Private MIB |

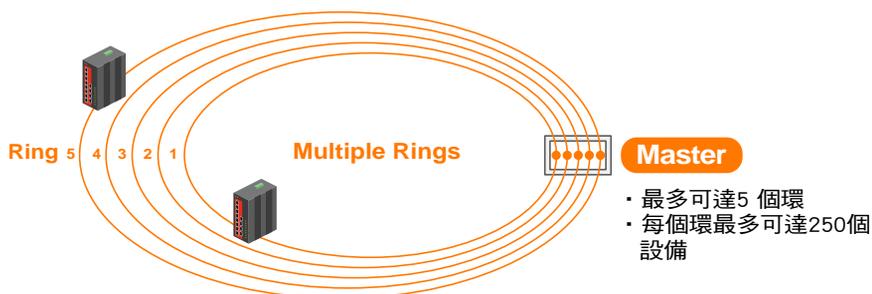
| | |
|-------------------------|----------------------------------------------------------------------------------|
| DHCP | Client |
| | Relay |
| | Snooping |
| | Snooping option 82 |
| | Relay option 82 |
| IP Source Guard | |
| Port Mirroring | |
| Event Syslog | Syslog server (RFC3164) (Support 1 server) |
| 告警訊息 | 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 |
| Cable Diagnostic | 偵測網路線的故障點距離 |
| Advanced PoE Management | |
| | PoE 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 limitation (maximum 120W for IFS-402GSM-4PH24 ,180W for IFS-803GSM-8PH24) Power feeding priority |

應用圖



圖一 (應用案例)



圖二 : Multiple Ring

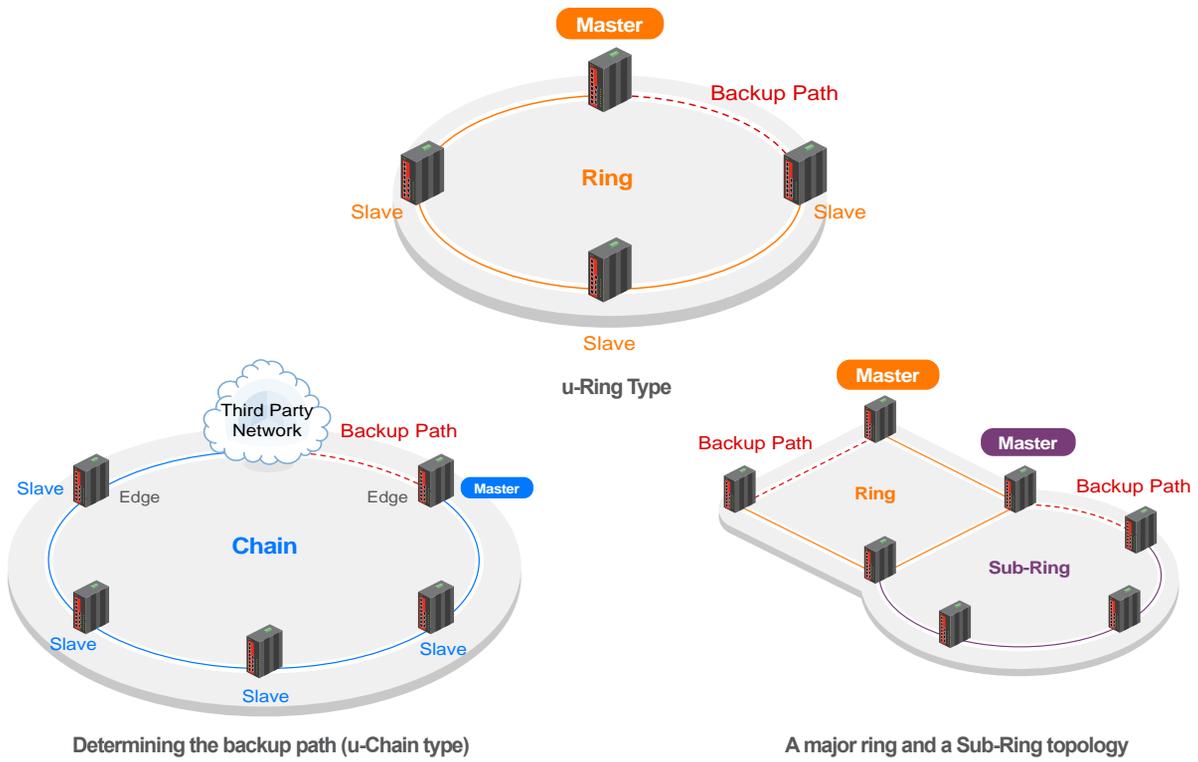
| u-Ring Configuration | | | | | | | | Auto-refresh <input type="checkbox"/> | Refresh |
|----------------------|----------|----------|--------------------------|-------------|--------------------------|-------------|--------------------------|---------------------------------------|---------|
| Delete | 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

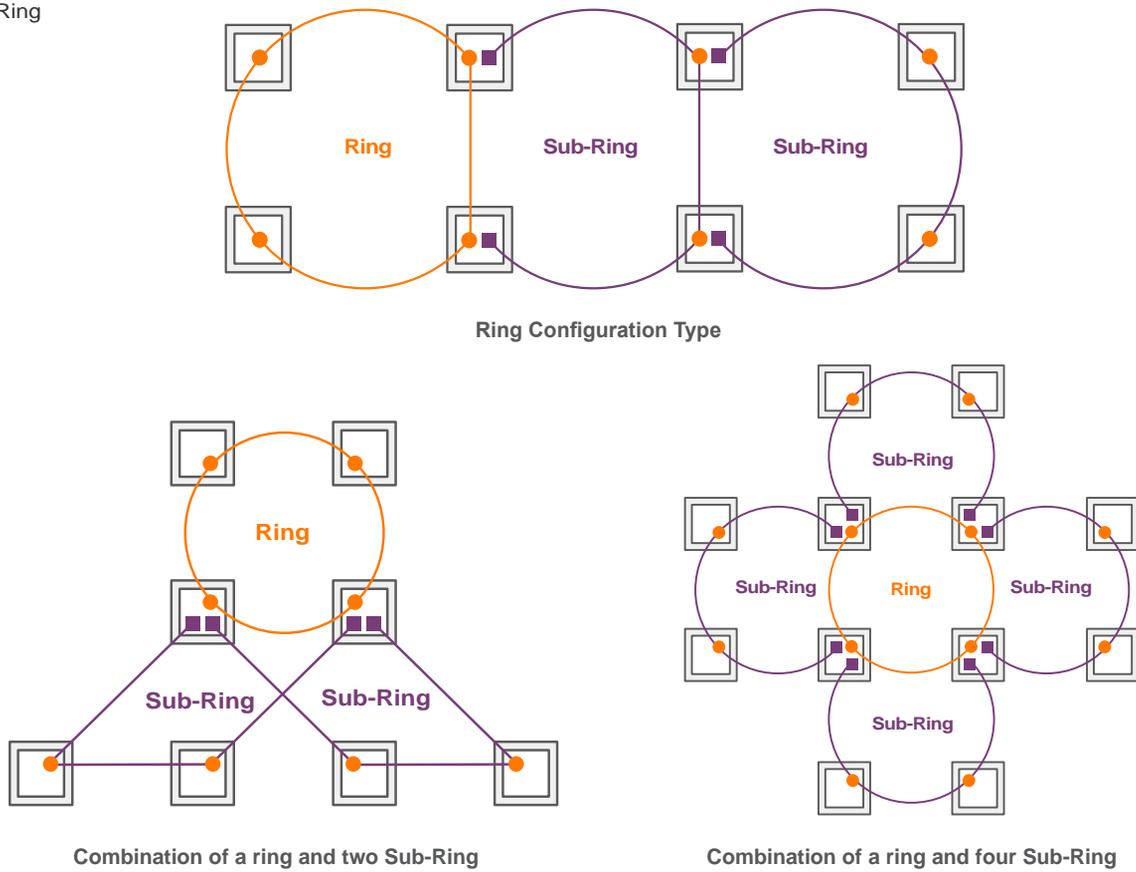
圖三 : (方便又容易設定的 u-Ring 功能設定Web 畫面)

圖四 (u-Ring 類型)



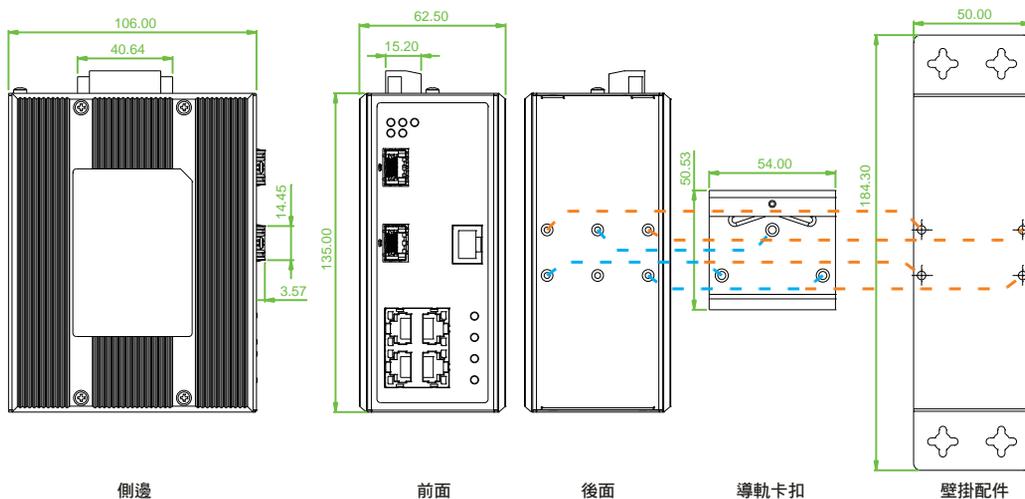
圖五 (Ring配置範例)

- u-Ring
- Sub-Ring

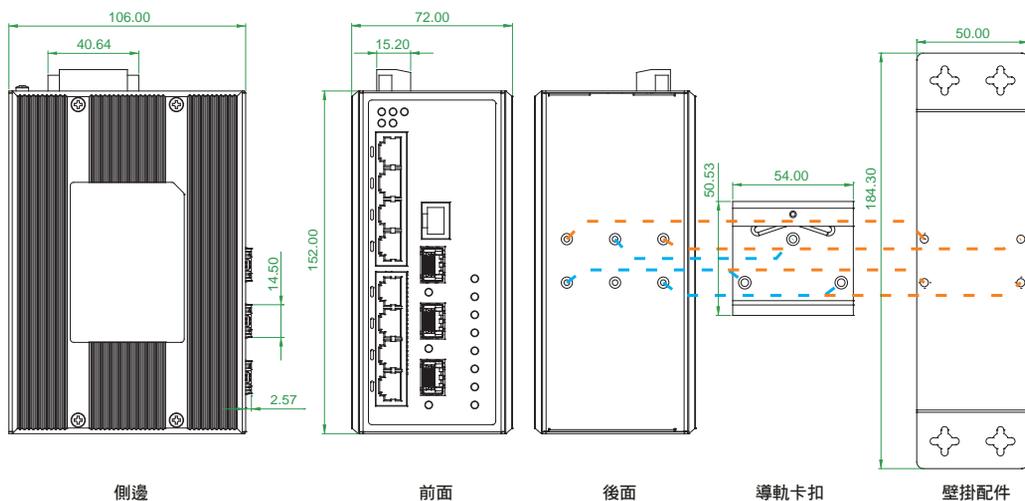


機構尺寸

IFS-402GSM-4PH24



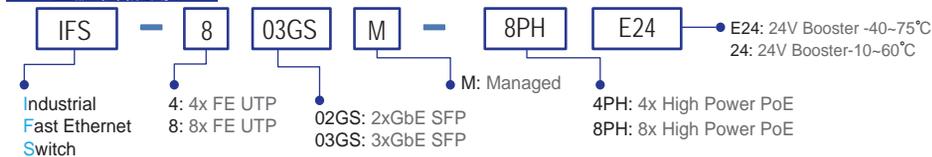
IFS-803GSM-8PH24



訂購資訊

| 型號 | 管理 | 總埠數 | UTP | | 光纖 | | PoE埠 | | 認證 | | | 操作溫度 |
|-------------------|----|-----|----------------|-----------------|--------------|--------|----------------|--------------|-------------------------|---------|----------|------|
| | | | 10/100 Base-TX | 100/1000 Base-X | IEEE 802.3at | PoE總功率 | 鐵道交通 EN50121-4 | 安全 UL60950-1 | EN61000-6-2 EN61000-6-4 | CE, FCC | | |
| IFS-402GSM-4PH24 | V | 6 | 4 | 2 SFP | 4 | 120W | V | V | V | V | -10~60 C | |
| IFS-402GSM-4PHE24 | V | 6 | 4 | 2 SFP | 4 | 120W | V | V | V | V | -40~75 C | |
| IFS-803GSM-8PH24 | V | 11 | 8 | 3 SFP | 8 | 180W | V | V | V | V | -10~60 C | |
| IFS-803GSM-8PHE24 | V | 11 | 8 | 3 SFP | 8 | 180W | V | V | V | V | -40~75 C | |

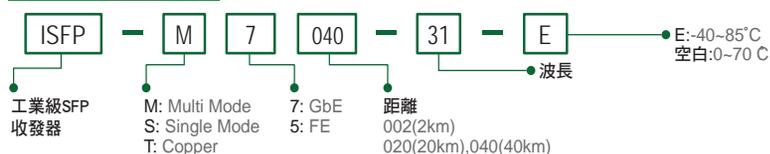
型號命名規則



選購配件

| | |
|------------|-------------------------------------------------------------------------------------|
| DR-120-24 | Industrial Power, Input 88 ~ 132VAC / 176 ~ 264VAC, Output 24VDC, 120W, -10 ~ +60°C |
| 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





30 Watts,
i2V Booster



IMC-1000-PH12

10/100/1000Base-T to 100/1000Base-FX/SX/LX with PoE + (PSE) Fiber Converter

IMC-1000S-PH12

10/100/1000Base-T to 100/1000Base-X SFP with PoE + (PSE) Fiber Converter

IMC-1000(S)-PH12是一部 10/100/1000Base-T 對 100/1000Base-X 千兆乙太網光電轉換器，此產品光纖介面可選擇雙速的固定式光纖收發器或SFP收發器，也能透過電子RJ-45端口輸送PoE+電力。具有堅固的外殼及 Din Rail 軌道式或掛壁式安裝方式，此產品專為惡劣環境，如工業網路、安全自動化應用、交通監控、安防自動化應用、IP surveillance、城市安防及智能交通系統 (ITS)，也適用於許多環境條件超出一般商規產品規格的軍事和公用事業的市場應用中。

功能特色

- 10/100/1000Base-T 電口與 100/1000Base-X 光纖介面之間的傳輸介面轉換
- 支援雙速 (100M 或 1000M) 光纖端口可以提供選擇百兆或千兆速度的光纖傳輸
- 雙電源輸入 12/24/48VDC(9.6~57VDC) 冗餘備援，內建非常高效率的電源升壓器 (97~99%) 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 IEEE802.3at PoE 埠輸出 (30W)
- 堅固的金屬外殼、IP30 防護、無風扇
- 寬溫工作範圍 (-20 ~ 75 °C) (IMC-1000-PHE12, IMC-1000S-PHE12)
- 通過 CE, FCC, 鐵道交通 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 Jumbo Frame 9K bytes packet
- 支援透過光纖端口斷線的方式，以重啟遠端 PoE PD

產品規格

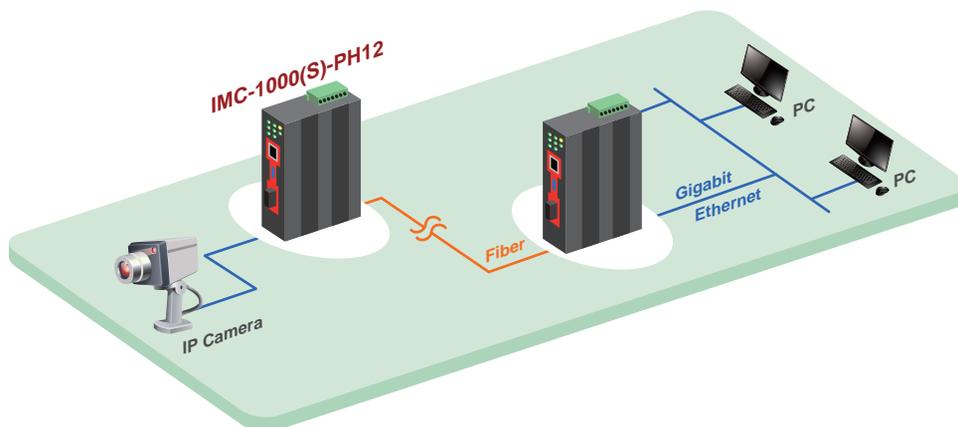
| | |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 符合標準 | IEEE802.3 10Base-T 10Mbit/s Ethernet IEEE802.3u 100Base-TX, 100Base-FX, Fast Ethernet IEEE802.3ab 1000Base-T Gbit/s Ethernet over twisted pair IEEE802.3z 1000Base-X Gbit/s Ethernet over Fiber-Optic IEEE802.3x Flow Control and Back pressure IEEE802.3at Power over Ethernet+, PoE+ IEEE802.3af Power over Ethernet, PoE |
| RJ-45 端口 | 10/100/1000Base-T |
| 光纖端口 | 100/1000Base-FX/SX/LX, 以 DIP SW 設定100M/1000M 速度 (IMC-1000-PH12, IMC-1000-PHE12) 100/1000Base-FX/SX/LX, SFP 插槽可用以插入 100M 或 1000M速度的 SFP 收發器,並以 DIP SW 設定速度 (IMC-1000S-PH12, IMC-1000S-PHE12) |
| 數據處理架構 | Store and Forward mode or Pass Through mode Set by DIP SW |
| Jumbo Frame | 9K bytes |
| 光纖參數 | Fiber Cable (Multi-mode): 50/125um, 62.5/125um Fiber Cable (Single-mode): 9/125um 波長: 1310nm (Multi-mode/Single-mode) 適用距離: 500M (Multi-mode SX), 20KM (Single-mode), 50KM(Single-mode)(IMC-1000-PH12, IMC-1000-PHE12) SFP機種, 傳輸距離視插入的 SFP光纖收發器而定 (IMC-1000S-PH12, IMC-1000S-PHE12) |
| Link Fault Pass Through (LFPT) | TX-光纖: 當TX端口斷線, 此時多媒體轉換器將強制將光纖端口關閉 光纖-TX: 當光纖端口斷線, 此時多媒體轉換器將強制將TX端口關閉 |
| DIP Switch | ON: Disable Alarm For Power Loss OFF: Enable Alarm For Power Loss ON: Disable Alarm For Port Link-Failure OFF: Enable Alarm For Port Link-Failure ON: LFPT Enable, OFF: LFPT Disable Data process Architecture : ON : Pass through mode OFF : Store and Forward Switch mode Fiber Speed: OFF: 1000Base-X ON: 100Base-X PoE Output: OFF: Enable PoE output ON: Disable PoE output Remote PD reset Off : Disable Remote PD reset On: Enable Remote PD reset by fiber port link down |

| 連接器及Pin腳配置 | Fiber: SC (Multi-mode, 500M), SC (Single-mode, 20KM, 40KM) (IMC-1000-PH12, IMC-1000-PHE12) SFP Slot (IMC-1000S-PH12, IMC-1000S-PHE12) RJ-45 Socket: CAT-3/5 (10/100/1000Mbps) Twisted Pair cable Auto MDI/MDI-X and Auto-Negotiation Function Support RJ-45 Port support IEEE 802.3at/af End-Span, Alternative A mode. PoE (V+): RJ-45 pin 1, 2. PoE (V-): RJ-45 pin 3, 6. Data (1, 2, 3, 6, 4, 5, 7, 8) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------|--------|---------|------|-------|-------|------|-----|-------|-------|-------|------|-----|-------|-------|-------|------|-----|-------|------|-------|--------|---------|------|-------|-------|------|-----|-------|-------|-------|------|-----|-------|-------|-------|------|-----|-------|
| LED指示燈 | Power 1 (綠), Power 2 (綠), Fault (琥珀色) Fiber LNK/ACT(綠): ON:網路連線, OFF:無網路連線, BLK:傳送/接收數據 光纖速度: 黃:1000Base-X, 綠:100Base-X RJ-45埠: 速度: 10(關閉), 100(綠), 1000(黃) LNK/ACT for RJ-45(綠): ON:網路連線, OFF:無網路連線, BLK: 傳送/接收數據 PoE狀態(綠): 閃爍: PoE Fault (過載或短路), ON: PoE功能正常 OFF:PoE無電力輸出 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 電壓極性保護 | 提供 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 電流過載保護 | 提供 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 電源供應 | 12/24/48VDC,可拔插式配接器具保護功能之極性冗餘備援 內置高效率電源升壓器(升壓效率達97~99%)供給PoE輸出 穩定的55 VDC電壓 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 耗電量 | IMC-1000-PH12 Power consumption & Booser efficiency <table border="1"> <thead> <tr> <th>輸入電壓</th> <th>總電源消耗</th> <th>設備消耗功率</th> <th>PoE最大功率</th> <th>升壓效率</th> </tr> </thead> <tbody> <tr> <td>12VDC</td> <td>34.4W</td> <td>3.9W</td> <td>30W</td> <td>98.4%</td> </tr> <tr> <td>24VDC</td> <td>34.9W</td> <td>4.5W</td> <td>30W</td> <td>98.7%</td> </tr> <tr> <td>48VDC</td> <td>35.4W</td> <td>4.7W</td> <td>30W</td> <td>97.7%</td> </tr> </tbody> </table> IMC-1000S-PH12 Power consumption & Booser efficiency <table border="1"> <thead> <tr> <th>輸入電壓</th> <th>總電源消耗</th> <th>設備消耗功率</th> <th>PoE最大功率</th> <th>升壓效率</th> </tr> </thead> <tbody> <tr> <td>12VDC</td> <td>34.2W</td> <td>3.9W</td> <td>30W</td> <td>99.0%</td> </tr> <tr> <td>24VDC</td> <td>34.7W</td> <td>4.4W</td> <td>30W</td> <td>99.0%</td> </tr> <tr> <td>48VDC</td> <td>35.4W</td> <td>4.7W</td> <td>30W</td> <td>97.7%</td> </tr> </tbody> </table> | 輸入電壓 | 總電源消耗 | 設備消耗功率 | PoE最大功率 | 升壓效率 | 12VDC | 34.4W | 3.9W | 30W | 98.4% | 24VDC | 34.9W | 4.5W | 30W | 98.7% | 48VDC | 35.4W | 4.7W | 30W | 97.7% | 輸入電壓 | 總電源消耗 | 設備消耗功率 | PoE最大功率 | 升壓效率 | 12VDC | 34.2W | 3.9W | 30W | 99.0% | 24VDC | 34.7W | 4.4W | 30W | 99.0% | 48VDC | 35.4W | 4.7W | 30W | 97.7% |
| 輸入電壓 | 總電源消耗 | 設備消耗功率 | PoE最大功率 | 升壓效率 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12VDC | 34.4W | 3.9W | 30W | 98.4% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24VDC | 34.9W | 4.5W | 30W | 98.7% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 48VDC | 35.4W | 4.7W | 30W | 97.7% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 輸入電壓 | 總電源消耗 | 設備消耗功率 | PoE最大功率 | 升壓效率 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12VDC | 34.2W | 3.9W | 30W | 99.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24VDC | 34.7W | 4.4W | 30W | 99.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 48VDC | 35.4W | 4.7W | 30W | 97.7% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 告警繼電器規格 | Relay outputs with current carrying capacity of 1 A @24VDC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 可插拔式配接器 | 提供一個6針可插拔式配接器。內含2個備援輸入電源，一個告警繼電器 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 工作濕度 | 5%~95% (無凝露) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 工作溫度 | -10°C~60°C (IMC-1000-PH12, IMC-1000S-PH12) -20°C~75°C (IMC-1000-PHE12, IMC-1000S-PHE12) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 儲存溫度 | -40°C~85°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | |
|-----------------|----------------------------------------------------------------------------------|
| 外殼 | 金屬外殼、IP30防護、無風扇 |
| 尺寸 | 106 x 38.6 x 142 mm(D x W x H) |
| 重量 | 655公克 (IMC-1000-PH12, IMC-1000-PHE12) 650公克 (IMC-1000S-PH12, IMC-1000S-PHE12) |
| 安裝方式 | Din Rail 軌道式安裝或壁掛式 |
| 認證 | |
| EMC | CE |
| EMI | FCC Part 15 Subpart B Class A, CE EN 55022 Class A |
| 軌道交通 | EN50121-4 |
| 重工業環境 抗電磁干擾 | EN 61000-6-2 |
| 重工業環境 電磁輻射干擾 | EN 61000-6-4 |

| | |
|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 (EFT) Level 3, Criteria A EN 61000-4-5 (Surge) Level 3, Criteria B EN 61000-4-6 (CS) Level 3, Criteria A EN61000-4-8 (PFMF) Field strength 300A/m Criteria A |
| Safety | UL60950-1 (pending) |
| 防撞擊 | IEC 60068-2-27 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC 60068-2-6 |
| MTBF | 419,822小時 (IMC-1000-PH12, IMC-1000-PHE12) 432,104小時 (IMC-1000S-PH12, IMC-1000S-PHE12) MIL-HDBK-217 |
| 產品保固 | 5年 |

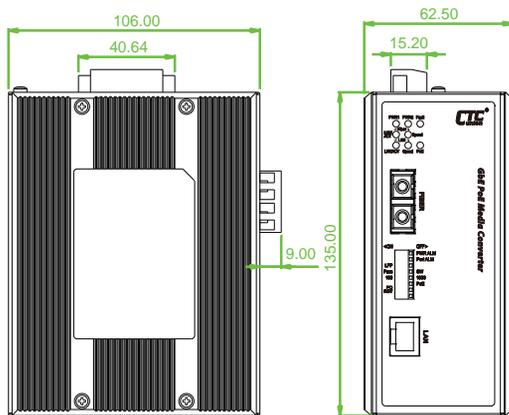
應用圖



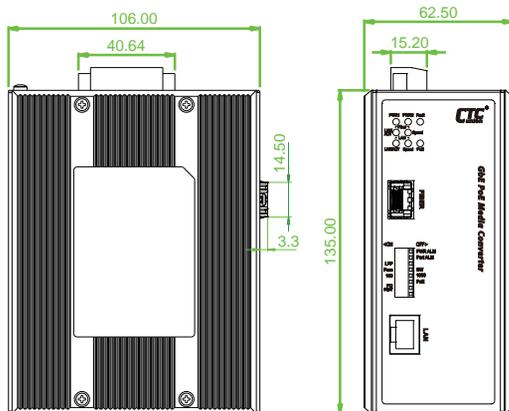
圖例：IMC-1000(S)-PH12 Industrial PoE Transmission

機構尺寸

IMC-1000-PH12

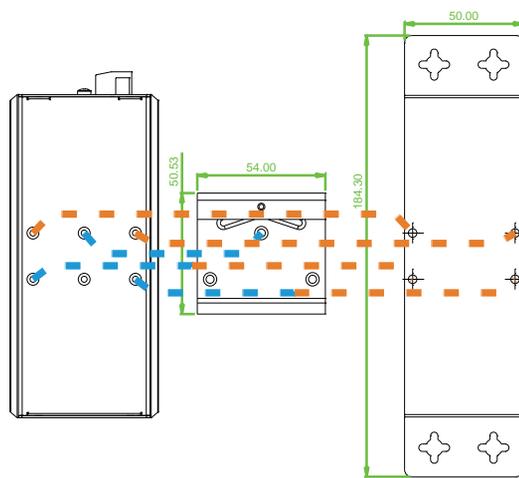


IMC-1000S-PH12



側邊

前面



後面

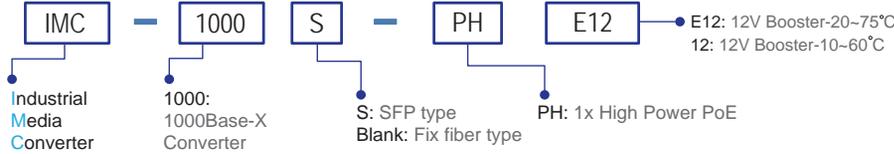
導軌卡扣

壁掛配件

訂購資訊

| 型號 | UTP | 光纖 | PoE埠 | | 輸入電壓 (Boost) | 認證 | | | | 操作溫度 |
|-----------------|-----------------------|------------------------------|----------------------|-----------------|-----------------|-------------------|----------------------------|----|-----|----------|
| | 10/100/1000 Base-T | Dual Speed 100/1000Base-X | IEEE802.3at (PSE) | Power Budget | | 鐵道交通 EN50121-4 | EN61000-6-2 EN61000-6-4 | CE | FCC | |
| IMC-1000-PH12 | 1 | 1 SC | 1 | 30W | 12/24/48VDC | V | V | V | V | -10~60 C |
| IMC-1000-PHE12 | 1 | 1 SC | 1 | 30W | 12/24/48VDC | V | V | V | V | -20~75 C |
| IMC-1000S-PH12 | 1 | 1 SFP | 1 | 30W | 12/24/48VDC | V | V | V | V | -10~60 C |
| IMC-1000S-PHE12 | 1 | 1 SFP | 1 | 30W | 12/24/48VDC | V | V | V | V | -20~75 C |

型號命名規則



| Fiber Connector Type | Connectivity Distance |
|---------------------------------------|------------------------------------------------------------------------|
| SC | 001: 500M (M/M) 002: 2km (M/M) 020: 20km (S/M) 040: 40km (S/M) |
| (IMC-1000-PH12 & IMC-1000-PHE12 only) | 020A: WDM 20km A Type (TX:1310nm) 020B: WDM 20km B Type (TX:1550nm) |

Example: IMC-1000 - PH 12 -

Temperature Connector Type Connectivity Distance

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 |
| MDR-60-24 | Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 60W, -20 ~ +70°C |
| SFP Transceiver | Compatible, Reliable, 5-year Warranty |

SFP命名規則





30 Watts,
i2V Booster



IMC-100-PH12

10/100Base-TX to 100Base-FX with PoE + (PSE) Fiber Converter

5

Industrial FE
Converter with PoE

IMC-100-PH12是一部 10/100Base-TX 對 100Base-FX 百兆乙太網光電轉換器，此產品光纖介面為固定式光纖收發器，也能透過電子RJ-45端口輸出PoE+電力。具有堅固的外殼及 Din Rail 軌道式或掛壁式安裝方式，此產品專為惡劣環境，如工業網路、安全自動化應用、交通監控、安防自動化應用、IP surveillance、城市安防及智能交通系統（ITS），也適用於許多環境條件超出一般商規產品規格的軍事和公用事業的市場應用中。

功能特色

- 10/100Base-TX 電口與 100Base-FX 光纖介面之間的傳輸介面轉換
- 雙電源輸入 12/24/48VDC(9.6~57VDC) 冗餘備援，內建非常高效率的電源升壓器 (97~99%) 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 IEEE802.3at PoE 埠輸出 (30W)
- 堅固的金屬外殼、IP30 防護、無風扇
- 寬溫工作範圍 (-20 ~ 75°C) (IMC-100-PHE12)
- 通過 CE, FCC, 鐵道交通 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 Jumbo Frame 9K bytes packet
- 支援透過光纖端口斷線的方式，以重啟遠端 PoE PD

產品規格

| | |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 符合標準 | IEEE802.3 10Base-T 10Mbit/s Ethernet IEEE802.3u 100Base-TX, 100Base-FX, Fast Ethernet IEEE802.3x Flow Control and Back pressure IEEE802.3at Power over Ethernet+, PoE+ IEEE802.3af Power over Ethernet, PoE |
| RJ-45 端口 | 10/100Base-TX |
| 光纖端口 | 100Base-FX (SC or ST 光纖連接器) |
| 數據處理架構 | Store and Forward mode or Pass Through mode (Set by DIP SW) |
| Jumbo Frame | 9K bytes |
| 光纖參數 | Fiber Cable (Multi-mode): 50/125um, 62.5/125um Fiber Cable (Single-mode): 9/125um 波長: 1310nm (Multi-mode/Single-mode) 適用距離: 2KM (Multi-mode), 30KM (Single-mode), 50KM(Single-mode) |
| Link Fault Pass Through (LFPT) | TX-光纖: 當TX端口斷線，此時多媒體轉換器將強制將光纖端口關閉 光纖-TX: 當光纖端口斷線，此時多媒體轉換器將強制將TX端口關閉 |
| DIP Switch | ON: Disable Alarm For Power Loss OFF: Enable Alarm For Power Loss ON: Disable Alarm For Port Link-Failure OFF: Enable Alarm For Port Link-Failure ON: LFPT Enable, OFF: LFPT Disable Data process Architecture : ON: Pass through mode OFF: Store and Forward Switch mode PoE Output OFF: Enable PoE output ON: Disable PoE output Remote PD reset OFF: Disable Remote PD reset ON: Enable Remote PD reset by fiber port link down |
| Fiber Connector | SC 或 ST連接器: 2KM (Multi-mode), 30KM (Single-mode), 50KM(Single-mode) |
| 連接器及Pin腳配置 | SC 或 ST連接器: 2KM (Multi-mode), 30KM (Single-mode), 50KM(Single-mode) RJ-45 Socket: CAT-3/5 (10/100Mbps) Twisted Pair cable PoE (V+): RJ-45 pin 1, 2. PoE (V-): RJ-45 pin 3, 6. Data (1,2,3,6) |

| | |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LED指示燈 | Power 1 (綠), Power 2 (綠), Fault (琥珀色) Fiber LNK/ACT(綠): ON:網路連線, OFF:無網路連線, BLK:傳送/接收數據 光纖速度: 綠:100Base-X RJ-45埠: 速度: 10(關閉), 100(綠) LNK/ACT for RJ-45(綠): ON:網路連線, OFF:無網路連線, BLK: 傳送/接收數據 PoE狀態(綠): 閃爍: PoE Fault (過載或短路), ON: PoE功能正常 OFF: PoE無電力輸出 |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| | |
|--------|--------------------------------------------------------------------------|
| 電壓極性保護 | 提供 |
| 電流過載保護 | 提供 |
| 電源供應 | 12/24/48VDC,可拔插式配接器具保護功能之極性冗餘備援內置高效率電源升壓器(升壓效率達97~99%)供給PoE輸出穩定的55 VDC電壓 |

| 耗電量 | <table border="1"> <thead> <tr> <th>輸入電壓</th> <th>總電源消耗</th> <th>設備消耗功率</th> <th>PoE最大功率</th> <th>升壓效率</th> </tr> </thead> <tbody> <tr> <td>12VDC</td> <td>34W</td> <td>3.5W</td> <td>30W</td> <td>98.4%</td> </tr> <tr> <td>24VDC</td> <td>34.4W</td> <td>4.1W</td> <td>30W</td> <td>99.0%</td> </tr> <tr> <td>48VDC</td> <td>34.9W</td> <td>4.3W</td> <td>30W</td> <td>98.0%</td> </tr> </tbody> </table> | 輸入電壓 | 總電源消耗 | 設備消耗功率 | PoE最大功率 | 升壓效率 | 12VDC | 34W | 3.5W | 30W | 98.4% | 24VDC | 34.4W | 4.1W | 30W | 99.0% | 48VDC | 34.9W | 4.3W | 30W | 98.0% |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------|--------|---------|------|-------|-----|------|-----|-------|-------|-------|------|-----|-------|-------|-------|------|-----|-------|
| 輸入電壓 | 總電源消耗 | 設備消耗功率 | PoE最大功率 | 升壓效率 | | | | | | | | | | | | | | | | | |
| 12VDC | 34W | 3.5W | 30W | 98.4% | | | | | | | | | | | | | | | | | |
| 24VDC | 34.4W | 4.1W | 30W | 99.0% | | | | | | | | | | | | | | | | | |
| 48VDC | 34.9W | 4.3W | 30W | 98.0% | | | | | | | | | | | | | | | | | |

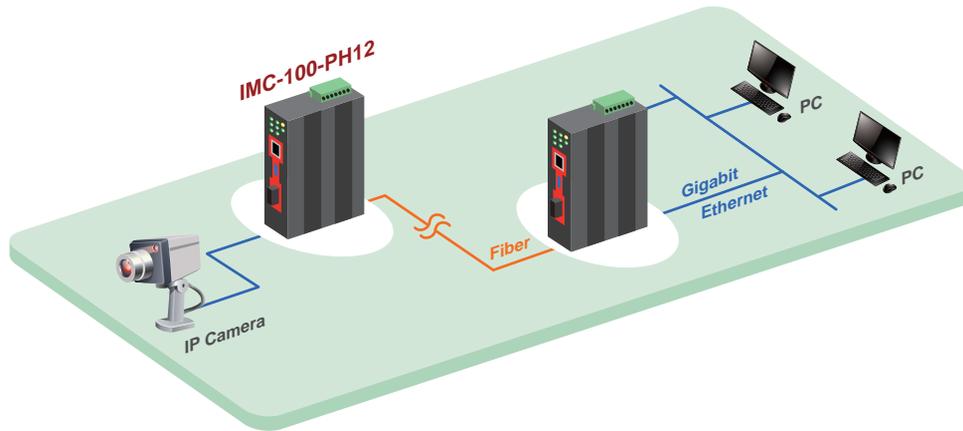
| | |
|---------|------------------------------------------------------------|
| 告警繼電器規格 | Relay outputs with current carrying capacity of 1 A @24VDC |
| 可插拔式配接器 | Provide 2 redundant power, alarm relay contact, 6 Pin |
| 工作濕度 | 5%~95% (無冷凝) |
| 工作溫度 | -10°C~60°C (IMC-100-PH12) -20°C~75°C (IMC-100-PHE12) |
| 儲存溫度 | -40°C~85°C |
| 外殼 | Rugged Metal, IP30 Protection and fanless |
| 尺寸 | 106 x 62.5 x 135 mm (D x W x H) |
| 重量 | 655公克 |
| 安裝方式 | Din Rail 軌道式安裝或壁掛式 |
| MTBF | 419,822小時 MIL-HDBK-217 |
| 產品保固 | 5年 |

認證

| | |
|-----------------|----------------------------------------------------|
| EMC | CE |
| EMI | FCC Part 15 Subpart B Class A, CE EN 55022 Class A |
| 軌道交通 | EN50121-4 |
| 重工業環境 抗電磁干擾 | EN 61000-6-2 |
| 重工業環境 電磁輻射干擾 | EN 61000-6-4 |

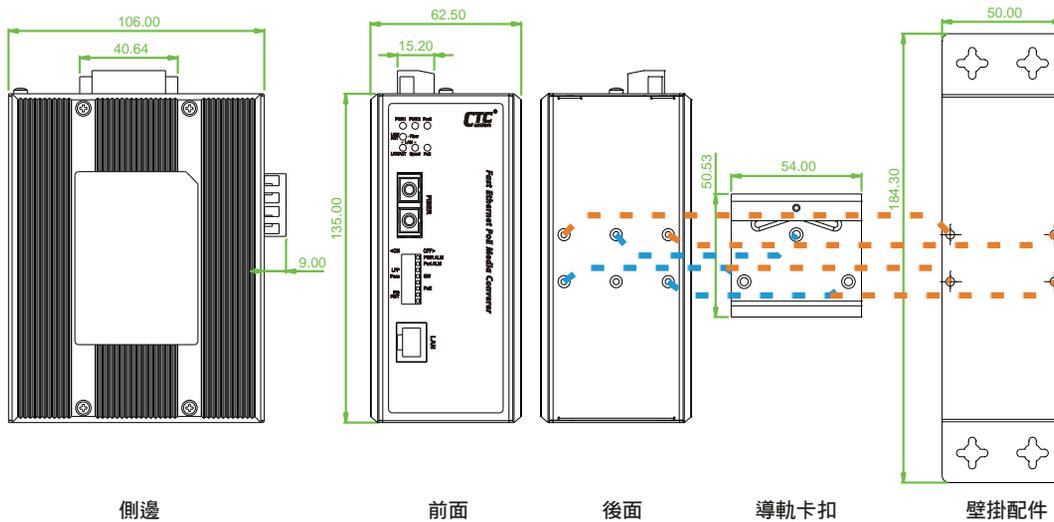
| | |
|-------------------------------------------------------|-----------------------------------------------------|
| EMS (Electromagnetic Susceptibility) 抗電磁干擾等級 | EN61000-4-2 (ESD) Level 3, Criteria B |
| | EN61000-4-3 (RS) Level 3, Criteria A |
| | EN61000-4-4 (EFT) Level 3, Criteria A |
| | EN61000-4-5 (Surge) Level 3, Criteria B |
| | EN61000-4-6 (CS) Level 3, Criteria A |
| | EN61000-4-8 (PFMF) Field strength 300A/m Criteria A |
| Safety | UL60950-1 (pending) |
| 防撞擊 | IEC 60068-2-27 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC 60068-2-6 |

應用圖



圖例：IMC-100-PH12 Industrial PoE Transmission

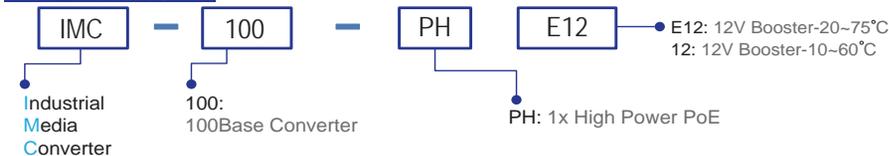
機構尺寸



訂購資訊

| 型號 | UTP | | 光纖 | | PoE埠 | | 輸入電壓 (Boost) | 認證 | | | | 操作溫度 |
|---------------|-------------------|--|------------|--|----------------------|-----------------|-----------------|-------------------|----------------------------|----|-----|----------|
| | 10/100 Base-TX | | 100Base-FX | | IEEE802.3at (PSE) | Power Budget | | 鐵道交通 EN50121-4 | EN61000-6-2 EN61000-6-4 | CE | FCC | |
| IMC-100-PH12 | 1 | | 1 SC/ST | | 1 | 30W | 12/24/48VDC | V | V | V | V | -10~60 C |
| IMC-100-PHE12 | 1 | | 1 SC/ST | | 1 | 30W | 12/24/48VDC | V | V | V | V | -20~75 C |

型號命名規則



| Fiber Connector Type | Connectivity Distance |
|----------------------|------------------------------------------------|
| SC, ST | 002: 2km (M/M) 030: 30km (S/M) 050: 50km (S/M) |
| | 020A: WDM 20km A Type (TX:1310nm) |
| | 020B: WDM 20km B Type (TX:1550nm) |

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 |
| MDR-60-24 | Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 60W, -20 ~ +70°C |

Temperature Connector Type Connectivity Distance

IMC-100 -PH 12 - [] [] [] [] [] []

Example: IMC-100 - PHE12 - SC002



IMC-100-PD

10/100Base-TX to 100Base-FX
Fiber Converter with PoE PD

IMC-100-PD為百兆乙太網非網管型多媒體轉換器，此系列產品可支援10/100Base-TX電口與100Base-FX光口的轉換。此產品提供 PoE PD Power Device 功能，此產品的電源可透過遠方的 PoE 供電器提供。

此系列於面板上提供簡易的指撥式開關，其開關可設定啟動或關閉Flow control，選擇全雙工或半雙工、選擇Store and Forward 或者Converter傳輸模式、開啟或關閉Link Fault Pass Through功能。搭配堅固的Din Rail 軌道式或壁掛安裝外殼，此產品專為惡劣環境，如工業網路、安全自動化應用、交通監控及智能交通系統（ITS），也適用於許多環境條件超出一般商規產品規格的軍事和公用事業的應用市場中。

功能特色

- 雙電源輸入 12/24/48VDC(9.6~58VDC) 冗餘備援，另外也可以由遠方 PoE 供電器提供電源
- 符合 IEEE802.3af, IEEE802.3at 規範
- 堅固的金屬外殼、IP30 防護、無風扇
- 寬溫工作範圍 -40 ~ 75°C (IMC-100-PDE)
- 通過 UL60950-1 安全，CE、FCC、鐵道交通 EN 50121-4 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
- Store-and-Forward mode and Pass through mode(以 DIP SW 設定)
- 10/100Base-TX 電口與 100Base-FX 光口傳輸介面間的資料轉換
- 提供 DIP-Switch 設定功能
- 支援 LFPT (Link Fault Pass Through)

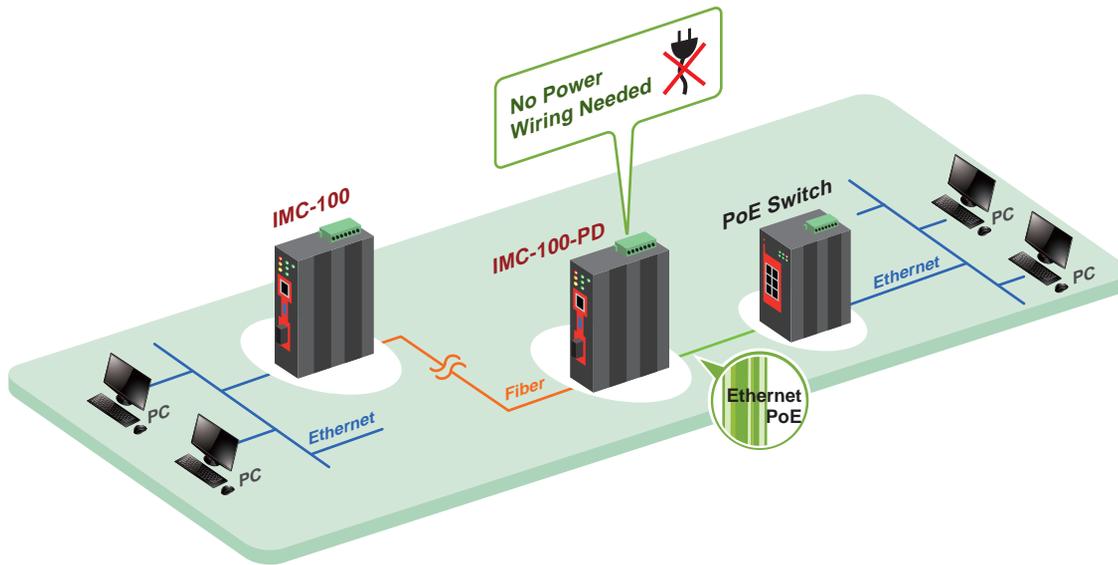
產品規格

| | |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 符合標準 | IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX/100BASE-FX IEEE 802.3x Flow Control and Back pressure IEEE 802.3af PoE (Power Device PD) |
| RJ-45 端口 | 10/100Base-TX |
| 光纖端口 | 100Base-FX (SC/ST connectors) |
| 數據處理架構 | Store and Forward mode 或 Pass through mode 可以 DIPSW 設定 支援1024個Mac Address (Store and Forward Mode時) |
| Ethernet Packet length | 2046Byte (Max) in Switch mode |
| Jumbo Frame | 9K bytes in Pass through (Converter mode) |
| 光纖參數 | Fiber Cable (Multi-mode): 50/125um,62.5/125um Fiber Cable (Single-mode): 9/125um 波長: 1310nm (Multi-mode/Single-mode) 適用距離: 2KM (Multi-mode) 30KM (Single-mode) 50KM (Single-mode) |
| Link Fault Pass Through (LFPT) | TX-光纖: 當TX端口斷線，此時多媒體轉換器將強制將光纖端口關閉 光纖-TX: 當光纖端口斷線，此時多媒體轉換器將強制將TX端口關閉 |
| DIP Switch | TP Auto Negotiation OFF: Auto Mode, ON: Force Mode Force TP Speed OFF:100 Mbps, ON:10 Mbps Force TP Duplex OFF:Full Duplex, ON: Half Duplex DIP Switch: ON: Enables LFPT(Link Fault Pass through) OFF: Disables LFPT(Link Fault Pass through) DIP Switch: ON: Flow Control Enable OFF: Flow Control Disable DIP Switch: OFF: Switching mode ON: Pass through Converter mode |
| 連接器 | 光口: SC (Multi-mode, 2km), SC (Single-mode, 30km, 50KM) ST (Multi-mode, 2km), ST (Single-mode, 30km, 50KM) 電口: CAT-3/5 (10/100Mbps) Twisted Pair cable Auto MDI/MDI-X and Auto-Negotiation Function Support |
| LED指示燈 | Power 1 (綠): ON: Power1 active/ OFF: Power1 is inactive Power 2 (綠): ON: Power2 active/ OFF: Power2 is inactive Fault (琥珀色): ON : Fiber or TP has failed OFF: Fiber and TP are functional Fiber(綠): ON: Connected to network OFF: Not connected to network/ BLK: Receive/Transmit Data RJ-45埠: 速度: 10(關閉), 100(綠) LNK/ACT for RJ-45(綠): ON:網路連線, OFF:無網路連線 BLK: 接收/傳送數據 PoE (綠): ON: 已連接PoE 供電器 OFF: 未連接PoE 供電器 |

| | |
|---------|--------------------------------------------------------------------------------------------------------------------------------------|
| 電壓極性保護 | 提供 |
| 電流過載保護 | 提供 |
| 電源供應 | 雙電源輸入12/24/48VDC(9.6~58VDC) 冗餘備援 (可拔插式配接器) Provide DC Power JACK adapter cable for external power adapter 支援由遠方 PoE 供電器提供電源 |
| 告警繼電器規格 | Relay outputs with current carrying capacity of 1 A @24VDC |
| 可插拔式配接器 | 內含2個備援輸入電源，一個繼電器警告 |
| 耗電量 | 2.9 W |
| 工作濕度 | 5% ~ 95% (無冷凝) |
| 工作溫度 | -10 ~ 60°C (IMC-100-PD), -40 ~ 75°C (IMC-100-PDE) |
| 儲存溫度 | -40 ~ 85°C |
| 外殼 | 堅固的金屬外殼、IP30防護、無風扇 |
| 尺寸 | 106 x 38.6 x 142mm (D X W X H) |
| 重量 | 0.63 公斤 |
| 安裝方式 | Din Rail 軌道式安裝或壁掛式 |

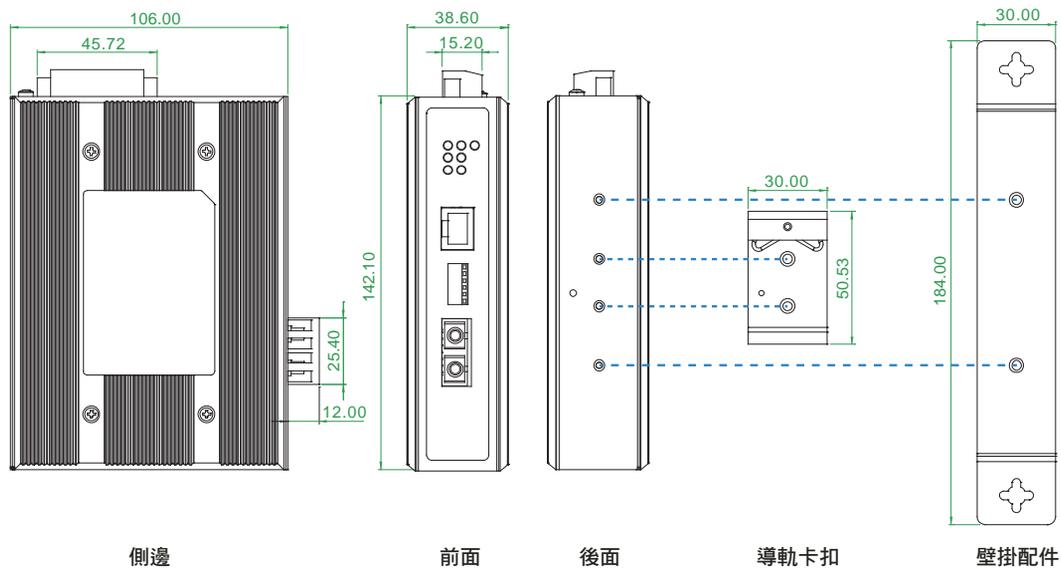
| | |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 認證 | |
| EMI (Electromagnetic Interference) | CE, FCC Part 15 Subpart B Class A EN 55022 Class A EN 61000-6-4 – Emission for industrial environment |
| EMS (抗電磁干擾等級) | EN 61000-6-2 – Immunity for Industrial environment EN61000-4-2 (ESD) Level 3, Criteria B EN61000-4-3 (RS) Level 3, Criteria A EN61000-4-4 (EFT) Level 3, Criteria A EN61000-4-5 (Surge) Level 3, Criteria B EN61000-4-6 (CS) Level 3, Criteria A EN61000-4-8 (Magnetic Field) Level 3, Criteria A |
| Safety | UL60950-1 |
| 軌道交通 | EN50121-4 |
| 防撞擊 | IEC 60068-2-27 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC 60068-2-6 (Operating, Packing) |
| MTBF | 755,114 小時 |
| 產品保固 | 5 年 |

應用圖



圖例：IMC-100-PD Industrial PoE Transmission

機構尺寸



訂購資訊

| 型號 | 產品敘述 |
|----------------------|---------------------------------------------------------------------------------------------------------------------|
| IMC-100-PD | 10/100-TX to 100-FX Fiber Converter with PoE PD ; Temperature Range : -10 ~ 60°C |
| IMC-100-PDE | 10/100-TX to 100-FX Fiber Converter with PoE PD ; Temperature Range : -40 ~ 75°C |
| Fiber Connector Type | Connectivity Distance |
| SC, ST | 002:2km (M/M) 030:30km (S/M) 050:50km (S/M) 020A:WDM 20km A type (TX:1310nm) 020B:WDM 20km B type (TX:1550nm) |

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 |
| MDR-60-24 | Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 60W, -20 ~ +70°C |

Temperature Connector Type Connectivity Distance
IMC-100-PD [] - [] [] [] []
 Example: IMC-100-PDE - SC002



30 Watts,
12V Booster



IMC-1000M-PH12

10/100/1000Base-T to 100/1000Base-FX/SX/LX with PoE + (PSE) Managed Fiber Converter

IMC-1000MS-PH12

10/100/1000Base-T to 100/1000Base-X SFP with PoE + (PSE) Managed Fiber Converter

IMC-1000M(S)-PH12是一部 10/100/1000Base-T 對 100/1000Base-X 千兆乙太網光電轉換器，此產品光纖介面可選擇雙速的固定式光纖收發器或SFP收發器，也能透過電子RJ-45端口輸送PoE+電力。具有堅固的外殼及 Din Rail 軌道式或掛壁式安裝方式，此產品專為惡劣環境，如工業網路、安全自動化應用、交通監控、安防自動化應用、IP surveillance、城市安防及智能交通系統（ITS），也適用於許多環境條件超出一般商規產品規格的軍事和公用事業的市場應用中。IMC-1000M(S)-PH12也提供許多進階的L2功能(VLAN、Storm Control、Ingress/Egress bandwidth control)，並可透過容易使用的圖形使用者介面或標準SNMP管理程式(像是CTC SmartView™)加以管理。藉由內建的OAM(操作、管理、維護及佈建)功能，例如loop-back test and dying gasp功能，IMC-1000M(S)-PH12可從具備OAM功能的FRM220-1000MS透過遠端in-band management方式加以監控，以達到集中化的管理方式，進而將現場服務降到最低，協助減少營運成本。

功能特色

- 10/100/1000Base-T 電口與 100/1000Base-X 光纖介面之間的傳輸介面轉換
- 支援雙速 (100M 或 1000M) 光纖端口可以提供選擇百兆或千兆速度的光纖傳輸
- 雙電源輸入 12/24/48VDC(9.6~57VDC) 冗餘備援，內建非常高效率的電源升壓器 (97~99%) 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 IEEE802.3at PoE 埠輸出 (30W)
- 金屬外殼、IP30 防護、無風扇
- 寬溫工作範圍 (-20 ~ 75 °C) (IMC-1000M-PHE12, IMC-1000MS-PHE12)
- 通過 CE, FCC, 鐵道交通 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 Jumbo Frame 9K bytes packet
- Ingress /Egress bandwidth control with 64K granularity
- PoE 設定及監控
- Auto Laser Shutdown (ALS)
- 支援 LFPT(Link Fault Pass Through)
- 支援 SFP 的 Digital Diagnostic Monitor Interface (DDMI)
- 支援 16 個 IEEE802.1 Q Tag VLAN Group
- MIB counters
- 支援 SNMP alarm trap for power loss and port link down
- Web based and SNMP for management (圖 1, 3)
- Remote Loop-Back test
- 透過 FRM220 主機加上 FRM220-1000MS 介面卡可執行 in-band management 管理方式 (圖 2)
- 支援 SmartView™ 集中式的管理系統

產品規格

| | |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 符合標準 | IEEE802.3 10Base-T 10Mbit/s Ethernet IEEE802.3u 100Base-TX, 100Base-FX, Fast Ethernet IEEE802.3ab 1000Base-T Gbit/s Ethernet over twisted pair IEEE802.3z 1000Base-X Gbit/s Ethernet over Fiber-Optic IEEE802.3x Flow Control and Back pressure IEEE802.3at Power over Ethernet+, PoE+ IEEE802.3af Power over Ethernet, PoE IEEE802.1q Tag VLAN |
| 光纖端口 | 100/1000Base-FX/SX/LX, 100M /1000M Speed set by Web (IMC-1000M-PH12, IMC-1000M-PHE12) SFP slot for 100Base-X or 1000Base-X, 100M/1000M speed set by Web (IMC-1000MS-PH12, IMC-1000MS-PHE12) |
| RJ-45 端口 | 10/100/1000Base-T |
| 按鈕 | 重啟，回復出廠設定 |
| 數據處理架構 | Store and Forward 或 Pass through 模式 |
| Jumbo Frame | 9K bytes |
| 光纖參數 | Fiber Cable (Multi-mode): 50/125um, 62.5/125um Fiber Cable (Single-mode): 9/125um 波長: 1310nm (Multi-mode/Single-mode) 適用距離: 500M (Multi-mode SX), 20KM (Single-mode), 40KM (Single-mode) (IMC-1000M-PH12, IMC-1000M-PHE12) SFP機種: 傳輸距離視插入的 SFP光纖收發器而定 (IMC-1000MS-PH12, IMC-1000MS-PHE12) |
| LFPT (Link Fault Pass Through) | TX-光纖: 當TX端口斷線，此時多媒體轉換器將強制將光纖端口關閉 光纖-TX: 當光纖端口斷線，此時多媒體轉換器將強制將TX端口關閉 |

| | |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 連接器及Pin腳配置 | 光纖: SC (Multi-mode, 500M), SC (Single-mode, 20KM, 40KM) (IMC-1000M-PH12, IMC-1000M-PHE12) SFP Slot (IMC-1000MS-PH12, IMC-1000MS-PHE12) RJ-45 Socket: CAT-3/5 (10/100/1000Mbps) Twisted Pair cable Auto MDI/MDI-X and Auto-Negotiation Function Support RJ-45 Port support IEEE 802.3at/af End-Span, Alternative A mode PoE (V+): RJ-45 pin 1, 2 PoE (V-): RJ-45 pin 3, 6 Data (1,2,3,6,4,5,7,8) |
| LED指示燈 | Power 1 (綠), Power 2 (綠), Fault (琥珀色) Fiber LNK/ACT(綠): ON:網路連線, OFF:無網路連線, BLK:傳送/接收數據 光纖速度: 黃:1000Base-X, 綠:100Base-X RJ-45埠: 速度: 10(關閉), 100(綠), 1000(黃) LNK/ACT for RJ-45(綠): ON:網路連線, OFF:無網路連線, BLK: 傳送/接收數據 PoE狀態(綠): 閃爍: PoE Fault (過載或短路), ON: PoE功能正常 OFF:PoE無電力輸出 |
| 電壓極性保護 | 提供 |
| 電流過載保護 | 提供 |
| 告警繼電器規格 | Relay outputs with current carrying capacity of 1 A @24VDC |
| 可插拔式配接器 | 提供一個6針可插拔式配接器。內含2個備援輸入電源，一個告警繼電器 |
| 工作濕度 | 5% to 95% (無冷凝) |
| 工作溫度 | -10°C~60°C (IMC-1000M-PH12, IMC-1000MS-PH12) -20°C~75°C (IMC-1000M-PHE12, IMC-1000MS-PHE12) |

| 儲存溫度 | -40°C~85°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------|--------|---------|------|-------|-------|------|-----|-------|-------|-------|------|-----|-------|-------|-------|------|-----|-------|------|-------|--------|---------|------|-------|-------|------|-----|-------|-------|-------|------|-----|-------|-------|-------|------|-----|-------|
| 外殼 | 金屬外殼、IP30防護、無風扇 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 尺寸 | 106 x 62.5 x 135 mm (D X W X H) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 重量 | 655公克 (IMC-1000M-PH12, IMC-1000M-PHE12) 650公克 (IMC-1000MS-PH12, IMC-1000MS-PHE12) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 安裝方式 | Din Rail 軌道式安裝或壁掛式 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 電源供應 | 12/24/48VDC,可拔插式配接器具保護功能之極性冗餘備援 內置高效率電源升壓器(升壓效率達97~99%)供給PoE輸出 穩定的55 VDC電壓 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 耗電量 | IMC-1000M-PH12 & IMC-1000M-PHE12 <table border="1"> <thead> <tr> <th>輸入電壓</th> <th>總電源消耗</th> <th>設備消耗功率</th> <th>PoE最大功率</th> <th>升壓效率</th> </tr> </thead> <tbody> <tr> <td>12VDC</td> <td>34.4W</td> <td>3.9W</td> <td>30W</td> <td>98.4%</td> </tr> <tr> <td>24VDC</td> <td>34.9W</td> <td>4.5W</td> <td>30W</td> <td>98.7%</td> </tr> <tr> <td>48VDC</td> <td>35.4W</td> <td>4.7W</td> <td>30W</td> <td>97.7%</td> </tr> </tbody> </table> IMC-1000MS-PH12 & IMC-1000MS-PHE12 <table border="1"> <thead> <tr> <th>輸入電壓</th> <th>總電源消耗</th> <th>設備消耗功率</th> <th>PoE最大功率</th> <th>升壓效率</th> </tr> </thead> <tbody> <tr> <td>12VDC</td> <td>34.2W</td> <td>3.9W</td> <td>30W</td> <td>99.0%</td> </tr> <tr> <td>24VDC</td> <td>34.7W</td> <td>4.4W</td> <td>30W</td> <td>99.0%</td> </tr> <tr> <td>48VDC</td> <td>35.4W</td> <td>4.7W</td> <td>30W</td> <td>97.7%</td> </tr> </tbody> </table> | 輸入電壓 | 總電源消耗 | 設備消耗功率 | PoE最大功率 | 升壓效率 | 12VDC | 34.4W | 3.9W | 30W | 98.4% | 24VDC | 34.9W | 4.5W | 30W | 98.7% | 48VDC | 35.4W | 4.7W | 30W | 97.7% | 輸入電壓 | 總電源消耗 | 設備消耗功率 | PoE最大功率 | 升壓效率 | 12VDC | 34.2W | 3.9W | 30W | 99.0% | 24VDC | 34.7W | 4.4W | 30W | 99.0% | 48VDC | 35.4W | 4.7W | 30W | 97.7% |
| 輸入電壓 | 總電源消耗 | 設備消耗功率 | PoE最大功率 | 升壓效率 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12VDC | 34.4W | 3.9W | 30W | 98.4% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24VDC | 34.9W | 4.5W | 30W | 98.7% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 48VDC | 35.4W | 4.7W | 30W | 97.7% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 輸入電壓 | 總電源消耗 | 設備消耗功率 | PoE最大功率 | 升壓效率 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12VDC | 34.2W | 3.9W | 30W | 99.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24VDC | 34.7W | 4.4W | 30W | 99.0% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 48VDC | 35.4W | 4.7W | 30W | 97.7% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MTBF | 401235 (IMC-1000M-PH12, IMC-1000M-PHE12) 331689 (IMC-1000MS-PH12, IMC-1000MS-PHE12) MIL-HDBK-217 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 產品保固 | 5年 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| 認證 | |
|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EMC | CE |
| EMI | FCC Part 15 Subpart B Class A, CE EN 55022 Class A |
| 軌道交通 | EN50121-4 |
| 重工業環境 抗電磁干擾 | EN 61000-6-2 |
| 重工業環境 電磁輻射干擾 | EN 61000-6-4 |
| 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 (EFT) Level 3, Criteria A EN61000-4-5 (Surge) Level 3, Criteria B EN61000-4-6 (CS) Level 3, Criteria A EN61000-4-8 (PFMF) Field strength 300A/m Criteria A |
| Safety | UL60950-1 (pending) |
| 防撞擊 | IEC 60068-2-27 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC 60068-2-6 |

軟體規格

| SNMP or Web Mode(圖一、三) | |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 管理 | Ingress/Egress bandwidth control with 64K granularity Web management、透過Web升級韌體 支援SNMP、MIB管理 支援DHCP客戶端的自動IP配置 Supports 802.1Q tag VLAN, 16個 Tag VLAN group, MIB counters display |
| 設定 | IP設定、密碼設定、光電轉換器設定 端口設定、MIB計數器、SNMP設定 VLAN group 設定, 告警設定、 PoE 設定 |
| 診斷&監控 | Supports Link Fault Pass-Through (LFPT) Function Broadcast/Multicast/Unicast storm filter SNMP alarm trap for power loss and port link Up/Down PoE 狀態 |

| In-Band Remote mode (圖二) | |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| 管理 | 透過FRM220 主機加上 FRM220-1000MS 介面卡可執行 in-band management 管理方式 Ingress/Egress bandwidth control with 64K granularity |
| 設定 | IP配置、光電轉換器設定、端口設定、MIB counter VLAN group 設定,告警設定、 PoE 設定 |
| 診斷&監控 | Remote loop-back test Supports Link Fault Pass-Through (LFPT) Function Broadcast/Multicast/Unicast storm filter PoE 狀態 |

應用圖

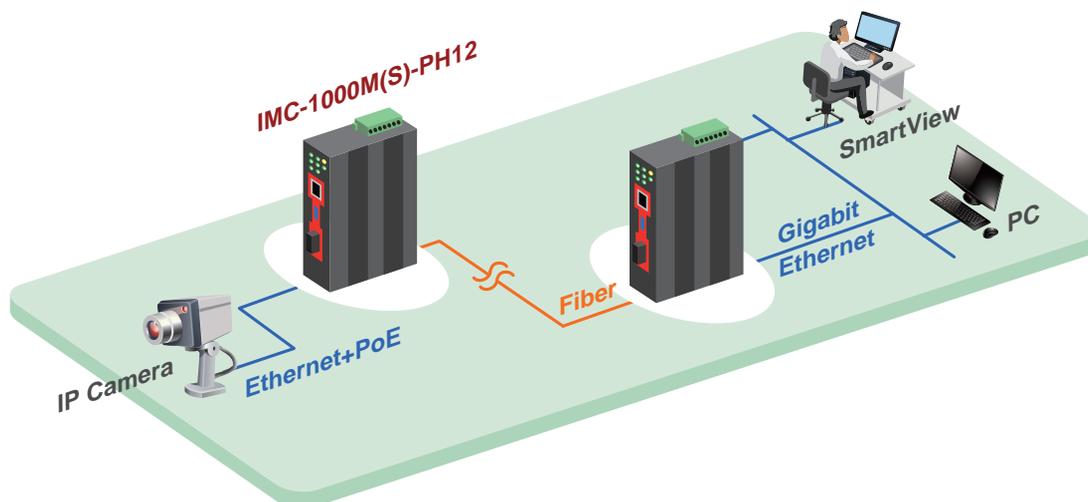


圖1：IMC-1000M(S)-PH12 Management by SNMP, SmartView

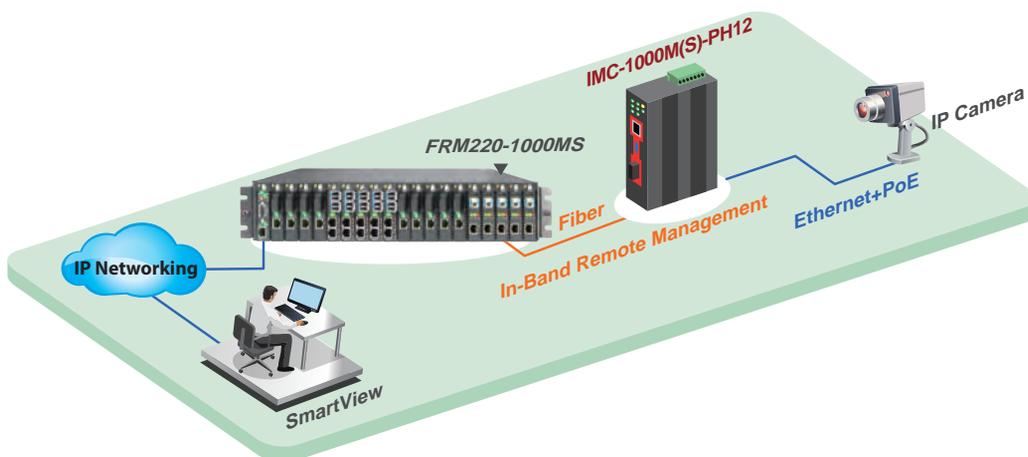


圖2 : IMC-1000M(S)-PH12 Application in Remote, In-Band Management

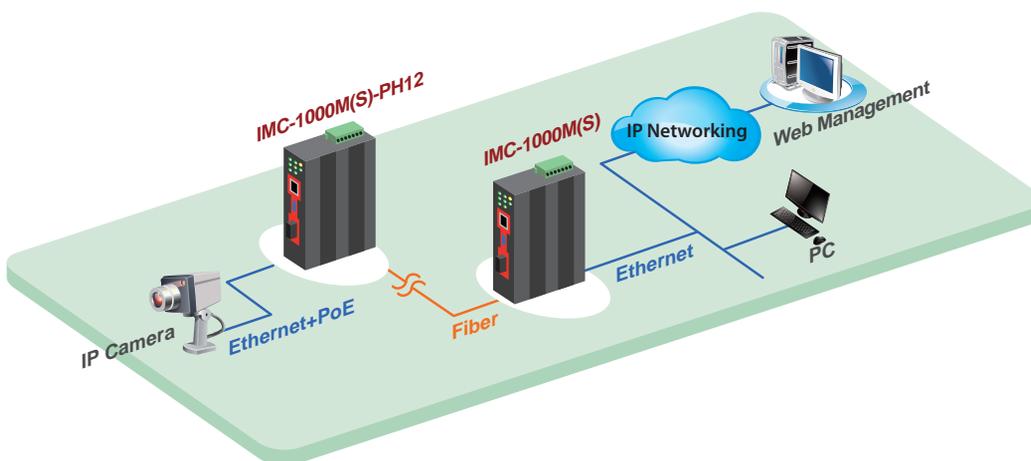
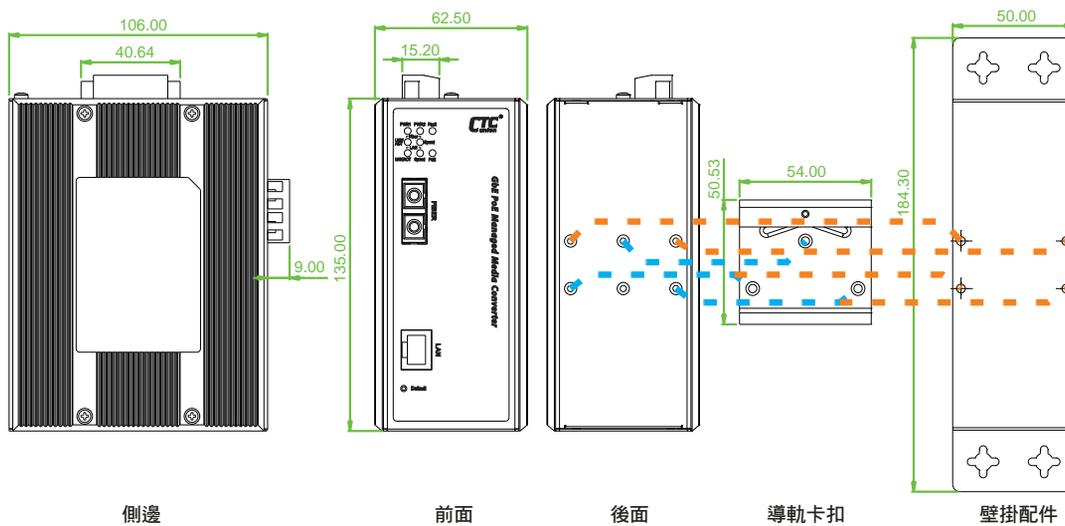


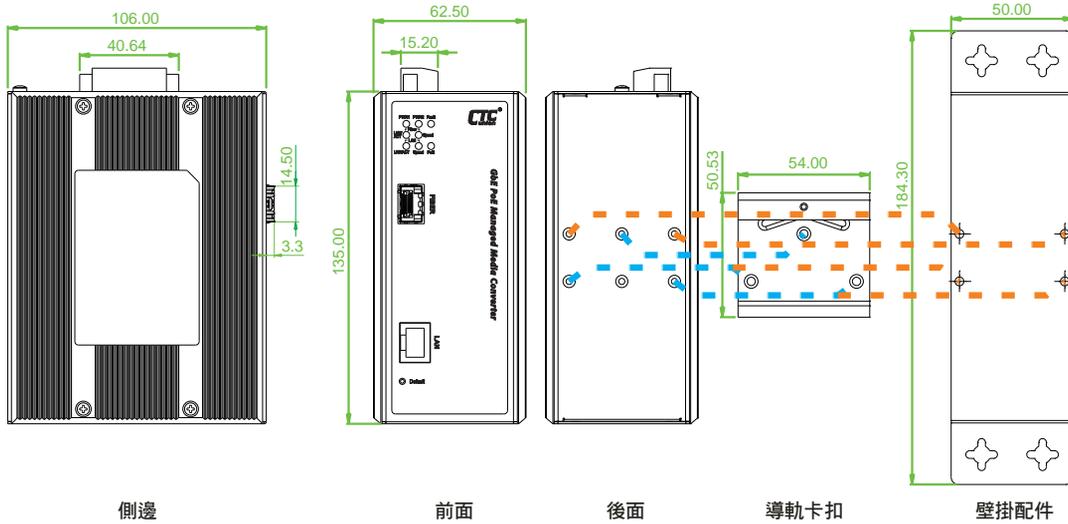
圖3 : IMC-1000M(S)-PH12 Application in Web Management

機構尺寸

IMC-1000M-PH12



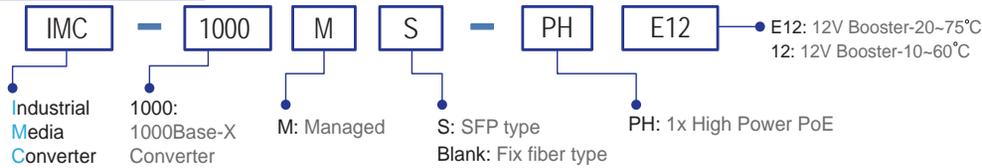
IMC-1000MS-PH12



訂購資訊

| 型號 | 管理 | UTP | | 光纖 | | PoE埠 | | 輸入電壓 (Boost) | 認證 | | | 操作溫度 |
|------------------|----|--------------------|--|---------------------------|--|-------------------|--------------|--------------|----------------|-------------------------|---------|----------|
| | | 10/100/1000 Base-T | | Dual Speed 100/1000Base-X | | IEEE802.3at (PSE) | Power Budget | | 鐵道交通 EN50121-4 | EN61000-6-2 EN61000-6-4 | CE, FCC | |
| IMC-1000M-PH12 | V | 1 | | 1 SC | | 1 | 30W | 12/24/48VDC | V | V | V | -10~60 C |
| IMC-1000M-PHE12 | V | 1 | | 1 SC | | 1 | 30W | 12/24/48VDC | V | V | V | -20~75 C |
| IMC-1000MS-PH12 | V | 1 | | 1 SFP | | 1 | 30W | 12/24/48VDC | V | V | V | -10~60 C |
| IMC-1000MS-PHE12 | V | 1 | | 1 SFP | | 1 | 30W | 12/24/48VDC | V | V | V | -20~75 C |

型號命名規則



| Fiber Connector Type | Connectivity Distance |
|--------------------------------------------|---------------------------------------------------------------------|
| SC (IMC-1000M-PH12 & IMC-1000M-PHE12 only) | 001:500M (M/M) 002: 2km (M/M) 020:20km (S/M) 040:40km (S/M) |
| | 020A: WDM 20km A Type (TX:1310nm) 020B: WDM 20km B Type (TX:1550nm) |

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 |
| MDR-60-24 | Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 60W, -20 ~ +70°C |
| SFP收發器 | Compatible, Reliable, 5-year Warranty |

Temperature Connector Type Connectivity Distance
IMC-1000M -PH 12 -
 Example: IMC-1000M - PHE12 - SC001

SFP命名規則





30 Watts,
i2V Booster

IMC-100M-PH12

10/100Base-TX to 100Base-FX with PoE + (PSE) Managed Fiber Converter



IMC-100M-PH12是一部 10/100Base-TX 對 100Base-FX 百兆乙太網光電轉換器，能透過電子RJ-45端口輸送PoE+電力，具有堅固的外殼及 Din Rail 軌道式或掛壁式安裝方式。此產品專為惡劣環境，如工業網路、安全自動化應用、交通監控、安防自動化應用、IP surveillance、城市安防及智能交通系統（ITS），也適用於許多環境條件超出一般商規產品規格的軍事和公用事業的市場應用中。IMC-100M-PH12也提供許多進階的L2功能(VLAN、Storm Control、Ingress/Egress bandwidth control)，並可透過容易使用的圖形使用者介面或標準SNMP管理程式(像是CTC SmartView™)加以管理。藉由內建的OAM(操作、管理、維護及佈建)功能，例如loop-back test and dying gasp功能IMC-100M-PH12可從具備OAM功能的FRM220-1000MS透過遠端in-band management方式加以監控，以達到集中化的管理方式，進而將現場服務降到最低，協助減少營運成本。

功能特色

- 10/100Base-TX 電口與 100Base-FX 光纖介面之間的傳輸介面轉換
- 雙電源輸入 12/24/48VDC(9.6~57VDC) 冗餘備援，內建非常高效率的電源升壓器 (97~99%) 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 IEEE802.3at PoE 埠輸出 (30W)
- 金屬外殼、IP30 防護、無風扇
- 寬溫工作範圍 (-20 ~ 75°C) (IMC-100M-PHE12)
- 通過 CE, FCC, 鐵道交通 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 Jumbo Frame 9K bytes packet
- Ingress /Egress bandwidth control with 64K granularity
- PoE 設定及監控
- Auto Laser Shutdown (ALS)
- 支援 LFPT(Link Fault Pass Through)
- 支援 SFP 的 Digital Diagnostic Monitor Interface (DDMI)
- 支援 16 個 IEEE802.1 Q Tag VLAN Group
- MIB counters
- 支援 SNMP alarm trap for power loss and port link down
- Web based and SNMP for management (圖 1, 3)
- Remote Loop-Back test
- 透過 FRM220 主機加上 FRM220-1000MS 介面卡可執行 in-band management 管理方式 (圖 2)
- 支援 SmartView™ 集中式的管理系統

產品規格

| | |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 符合標準 | IEEE802.3 10Base-T 10Mbit/s Ethernet IEEE802.3u 100Base-TX, 100Base-FX, Fast Ethernet IEEE802.3x Flow Control and Back pressure IEEE802.3at Power over Ethernet+, PoE+ IEEE802.3af Power over Ethernet, PoE IEEE802.1q Tag VLAN |
| 光纖端口 | 100Base-FX, SC 或 ST, 100M Speed |
| RJ-45 端口 | 10/100Base-TX |
| 按鈕 | 重啟，回復出廠設定 |
| 數據處理架構 | Pass through mode |
| Jumbo Frame | 9K bytes |
| 光纖參數 | Fiber Cable (Multi-mode): 50/125um, 62.5/125um Fiber Cable (Single-mode): 9/125um 波長: 1310nm (Multi-mode/Single-mode) 適用距離: 2KM (Multi-mode), 30KM, 50KM(Single-mode), 20KM (WDM Bidi) |
| LFPT (Link Fault Pass Through) | TX-光纖: 當TX端口斷線，此時多媒體轉換器將強制將光纖端口關閉 光纖-TX: 當光纖端口斷線，此時多媒體轉換器將強制將TX端口關閉 |
| 連接器及Pin腳配置 | 光纖: SC/ST (Multi-mode, 2km), SC/ST (Singlemode, 30km, 50km) RJ-45 Socket: CAT-3/5 (10/100Mbps) Twisted Pair cable Auto MDI/MDI-X and Auto-Negotiation Function Support RJ-45 Port support IEEE 802.3at/af End-Span, Alternative A mode PoE (V+): RJ-45 pin 1, 2 PoE (V-): RJ-45 pin 3, 6 Data (1,2,3,6) |

| LED指示燈 | Power 1 (綠), Power 2 (綠), Fault (琥珀色) Fiber LNK/ACT(綠): ON:網路連線, OFF:無網路連線, BLK:傳送/接收數據 光纖速度: 綠:100Base-X RJ-45埠: 速度: 10(關閉), 100(綠) LNK/ACT for RJ-45(綠): ON: 網路連線, OFF:無網路連線, BLK: 傳送/接收數據 PoE狀態(綠): 閃爍: PoE Fault (過載或短路), ON: PoE功能正常 OFF: PoE無電力輸出 | | | | | | | | | | | | | | | | | | | | |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------|--------|---------|------|-------|-------|------|-----|-------|-------|-------|------|-----|-------|-------|-------|------|-----|-------|
| 電壓極性保護 | 提供 | | | | | | | | | | | | | | | | | | | | |
| 電流過載保護 | 提供 | | | | | | | | | | | | | | | | | | | | |
| 告警繼電器規格 | Relay outputs with current carrying capacity of 1 A @24VDC | | | | | | | | | | | | | | | | | | | | |
| 可插拔式配接器 | 提供一個6針可插拔式配接器。內含2個備援輸入電源，一個告警繼電器 | | | | | | | | | | | | | | | | | | | | |
| 工作濕度 | 5%~95% (無冷凝) | | | | | | | | | | | | | | | | | | | | |
| 工作溫度 | -10°C~60°C (IMC-100M-PH12) -20°C~75°C (IMC-100M-PHE12) | | | | | | | | | | | | | | | | | | | | |
| 儲存溫度 | -40°C~85°C | | | | | | | | | | | | | | | | | | | | |
| 外殼 | 金屬外殼、IP30防護、無風扇 | | | | | | | | | | | | | | | | | | | | |
| 尺寸 | 106 x 62.5 x 135 mm (D X W X H) | | | | | | | | | | | | | | | | | | | | |
| 重量 | 655公克 | | | | | | | | | | | | | | | | | | | | |
| 安裝方式 | Din Rail 軌道式安裝或壁掛式 | | | | | | | | | | | | | | | | | | | | |
| 電源供應 | 12/24/48VDC(9.6~57VDC)，可插拔式配接器具備保護功能之極性冗餘備援內置高效率電源升壓器(升壓效率達97~99%)供給PoE輸出穩定的55 VDC電壓 | | | | | | | | | | | | | | | | | | | | |
| 耗電量 | <table border="1"> <thead> <tr> <th>輸入電壓</th> <th>總電源消耗</th> <th>設備消耗功率</th> <th>PoE最大功率</th> <th>升壓效率</th> </tr> </thead> <tbody> <tr> <td>12VDC</td> <td>34.4W</td> <td>3.9W</td> <td>30W</td> <td>98.4%</td> </tr> <tr> <td>24VDC</td> <td>34.9W</td> <td>4.5W</td> <td>30W</td> <td>98.7%</td> </tr> <tr> <td>48VDC</td> <td>35.4W</td> <td>4.7W</td> <td>30W</td> <td>97.7%</td> </tr> </tbody> </table> | 輸入電壓 | 總電源消耗 | 設備消耗功率 | PoE最大功率 | 升壓效率 | 12VDC | 34.4W | 3.9W | 30W | 98.4% | 24VDC | 34.9W | 4.5W | 30W | 98.7% | 48VDC | 35.4W | 4.7W | 30W | 97.7% |
| 輸入電壓 | 總電源消耗 | 設備消耗功率 | PoE最大功率 | 升壓效率 | | | | | | | | | | | | | | | | | |
| 12VDC | 34.4W | 3.9W | 30W | 98.4% | | | | | | | | | | | | | | | | | |
| 24VDC | 34.9W | 4.5W | 30W | 98.7% | | | | | | | | | | | | | | | | | |
| 48VDC | 35.4W | 4.7W | 30W | 97.7% | | | | | | | | | | | | | | | | | |
| MTBF | 410,235 小時 (IMC-100M-PH12, IMC-100M-PHE12) | | | | | | | | | | | | | | | | | | | | |
| 產品保固 | 5年 | | | | | | | | | | | | | | | | | | | | |

| 認證 | |
|-----------------|----------------------------------------------------|
| EMC | CE |
| EMI | FCC Part 15 Subpart B Class A, CE EN 55022 Class A |
| 軌道交通 | EN50121-4 |
| 重工業環境 抗電磁干擾 | EN 61000-6-2 |
| 重工業環境 電磁輻射干擾 | EN 61000-6-4 |

| | |
|----------------------------------------------------|-----------------------------------------------------|
| 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 (EFT) Level 3, Criteria A |
| | EN61000-4-5 (Surge) Level 3, Criteria B |
| | EN61000-4-6 (CS) Level 3, Criteria A |
| | EN61000-4-8 (PFMF) Field strength 300A/m Criteria A |
| Safety | UL60950-1 (pending) |
| 防撞擊 | IEC 60068-2-27 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC 60068-2-6 |

軟體規格

| SNMP or Web Mode(圖一、三) | |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 管理 | Ingress/Egress bandwidth control with 64K granularity Web management、透過Web升級韌體 支援SNMP、MIB管理 支援DHCP客戶端的自動IP配置 Supports 802.1Q tag VLAN, 16個 Tag VLAN group, MIB counters display |
| 設定 | IP設定、密碼設定、光電轉換器設定 端口設定、MIB計數器、SNMP設定 VLAN group 設定, 告警設定、 PoE 設定 |
| 診斷&監控 | Supports Link Fault Pass-Through (LFPT) Function Broadcast/Multicast/Unicast storm filter SNMP alarm trap for power loss and port link Up/Down PoE 狀態 |

| In-Band Remote mode (圖二) | |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| 管理 | 透過FRM220 主機加上 FRM220-1000MS 介面卡可執行 in-band management 管理方式 |
| 設定 | Ingress/Egress bandwidth control with 64K granularity IP配置、光電轉換器設定、端口設定、MIB counter VLAN group 設定,告警設定、 PoE 設定 |
| 診斷&監控 | Remote loop-back test Supports Link Fault Pass-Through (LFPT) Function Broadcast/Multicast/Unicast storm filter PoE 狀態 |

應用圖

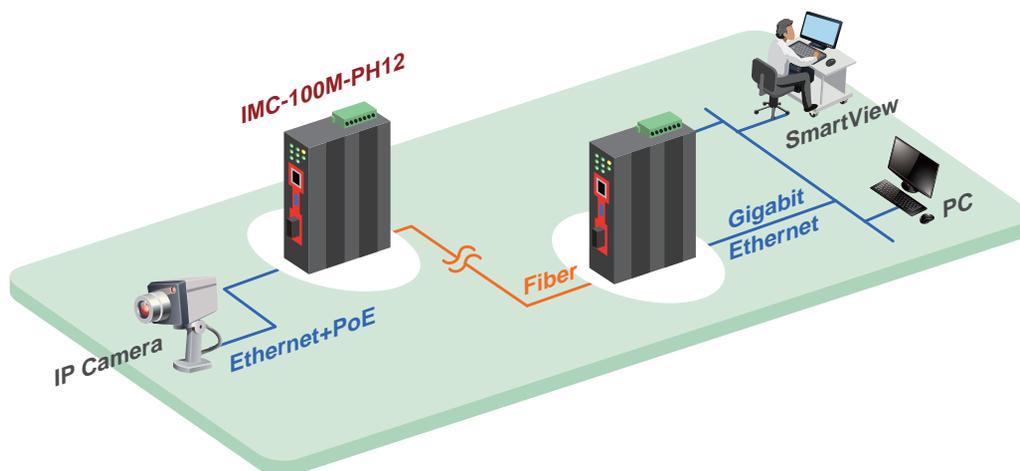


圖1 : IMC-100M-PH12 Management by SNMP, SmartView

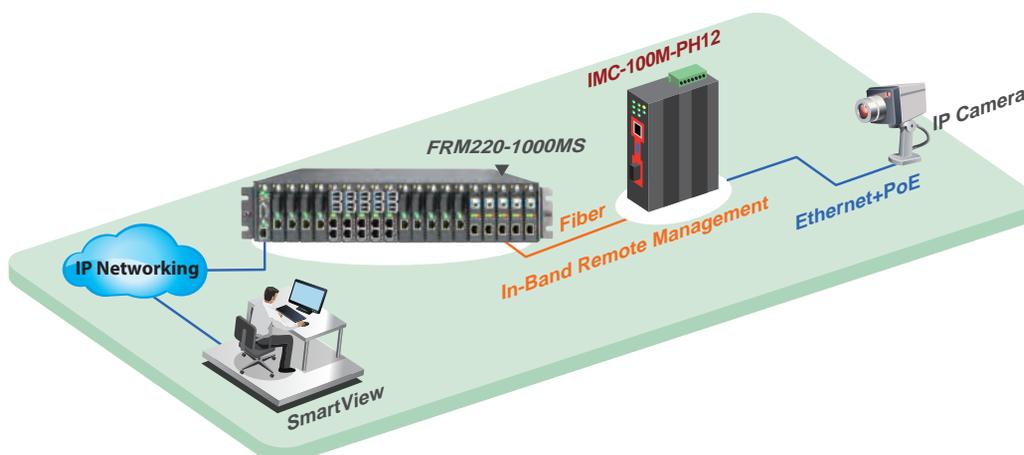


圖2 : IMC-100M-PH12 Application in Remote, In-Band Management

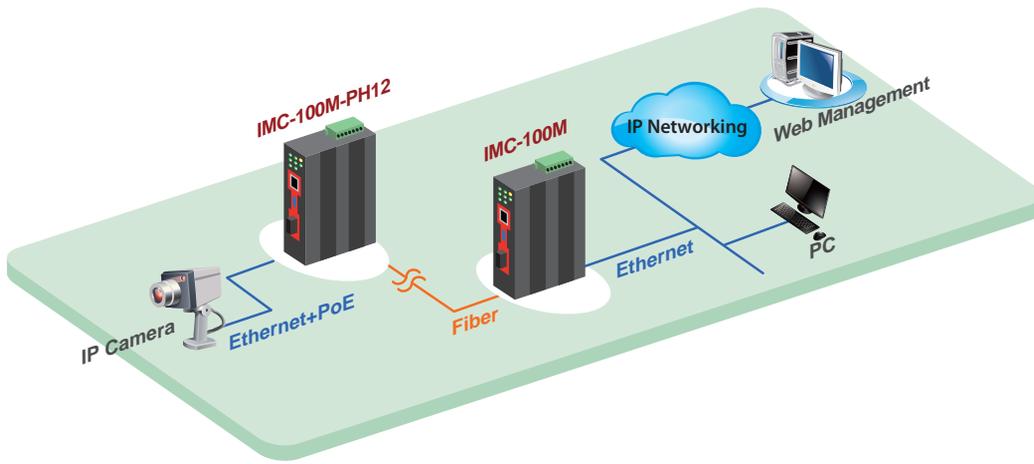
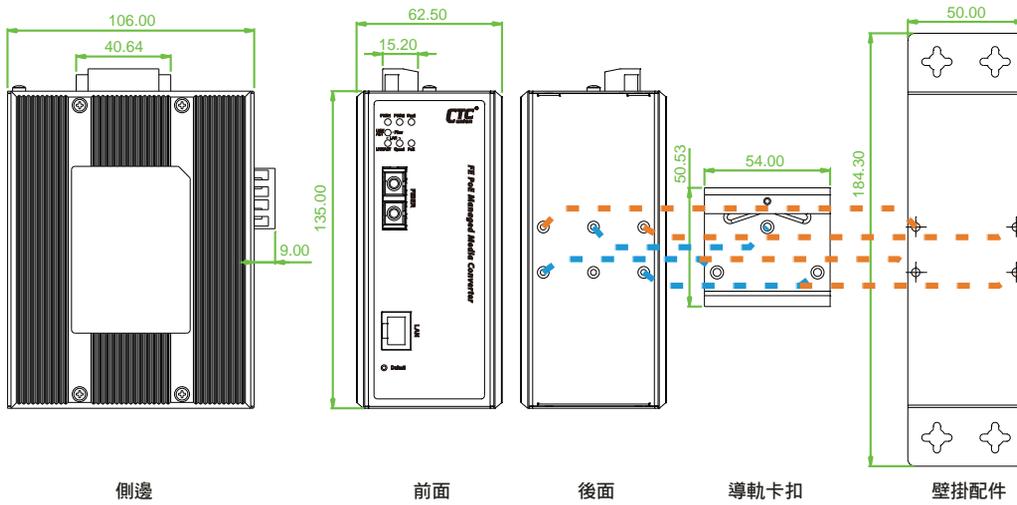


圖3 : IMC-100M-PH12 Application in Web Management

機構尺寸

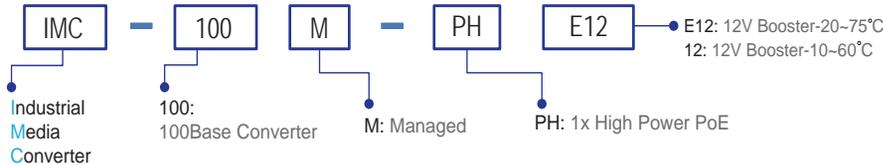


5 Industrial Managed FE Converter with PoE

訂購資訊

| 型號 | 管理 | UTP | 光纖 | PoE埠 | | 輸入電壓 (Boost) | 認證 | | | 操作溫度 |
|----------------|----|----------------|------------|-------------------|--------------|--------------|----------------|-------------------------|---------|----------|
| | | 10/100 Base-TX | 100Base-FX | IEEE802.3at (PSE) | Power Budget | | 鐵道交通 EN50121-4 | EN61000-6-2 EN61000-6-4 | CE, FCC | |
| IMC-100M-PH12 | V | 1 | 1 SC | 1 | 30W | 12/24/48VDC | V | V | V | -10~60 C |
| IMC-100M-PHE12 | V | 1 | 1 SC | 1 | 30W | 12/24/48VDC | V | V | V | -20~75 C |

型號命名規則



| Fiber Connector Type | Connectivity Distance |
|----------------------|------------------------------------------------------------------------------------------------------------------------|
| SC | 002:2km (M/M) 030:30km (S/M) 050:50km (S/M) 020A: WDM 20km A type (TX:1310nm) 020B: WDM 20km B type (TX: 1550nm) |

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 |
| MDR-60-24 | Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 60W, -20 ~ +70°C |

Temperature Connector Type Connectivity Distance

IMC-100M -PH 12 -

Example: IMC-100M -PHE12 - SC002

NEW



Up to 1.2KM

IEXT224-4PH IEXT204-4PH

Long Reach PoE Extenders
(Phone line and Coaxial cable)



IEXT224-4PH及IEXT204-4PH系列產品的設計目的，是要將乙太網資料和IEEE 802.3at乙太網供電的範圍延伸超越網路基礎架構的100公尺原始限制。本解決方案是以成對的點對點連線來運作。位於本機站點的機組可透過一對電話等級的UTP導線或最長1,200公尺的同軸線來傳輸資料和電力。位於遠端站點的機組配備四個10/100Base-TX IEEE 802.3at PoE端口，能提供30W的總電功率容量，並可在遠端站點無法供電時，從本機站點接收電源供應。

這些產品是專門針對嚴酷環境，像是工業網路、交通監控、安全性自動化應用、IP監視、都市維安、智慧型運輸系統(ITS)所設計，也相當適合用於環境條件需求超越商業產品規格的應用，包括多種軍事及公共事業應用。

功能特色

- 長數據傳輸和供電距離可達 1200 米
- 通過 IEEE 802.3at PoE 認證
- 能同時傳輸乙太數據及 PoE 電話線或同軸電纜
- 電源集中管理
- 無須再遠端設置電源
- 可快速且簡單的設置電源線
- 靈活配置且高效的電源管理
- Dip Switch to option the remote unit that can be powered by remote-side power or local power
- LED 顯示數據傳輸速率
- LED 顯示實時功率負載

產品規格

| 硬體介面 | 符合標準 | IEEE802.3 10Base-T IEEE802.3u 100Base-TX IEEE802.3af PoE IEEE802.3af PoE+ ITU-T G.993.2 VDSL2 | | | | | | | | | | | | | | | | | | |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-------|--------------------------|------|---------|-----|------|--------|-----|------|--------|-----|------|--------|----|-------|--------|----|
| Power over Copper | PoE Extender with 4x 10/100Base-TX IEEE 802.3at PoE Ports | | | | | | | | | | | | | | | | | | | |
| 網路連接器 | 銅線端口使用可拔插式配接器 同軸端口使用的BNC 母頭 (IEXT204-4PH24) 4個 RJ-45 10/100Base-TX IEEE 802.3at PoE 端口 | | | | | | | | | | | | | | | | | | | |
| Dip Switch | SW 1: 選擇性 Asy (30a) or Sym(17a) (VDSL2 Profile) SW 2: 選擇性 target SNR margin 6dB 或 9dB SW 3: 選擇性遠程電源: 通過遠程供電電源(見圖一) 通過當地供電電源(見圖二) | | | | | | | | | | | | | | | | | | | |
| Performance | 電話線距離VS速率及功率 | | | | | | | | | | | | | | | | | | | |
| | | <table border="1"> <thead> <tr> <th>距離</th> <th>電話線速度</th> <th>總PoE電力(Watt) (遠程電力模式)</th> </tr> </thead> <tbody> <tr> <td>300m</td> <td>100Mbps</td> <td>30W</td> </tr> <tr> <td>600m</td> <td>65Mbps</td> <td>15W</td> </tr> <tr> <td>700m</td> <td>50Mbps</td> <td>10W</td> </tr> <tr> <td>800m</td> <td>45Mbps</td> <td>7W</td> </tr> <tr> <td>1000m</td> <td>35Mbps</td> <td>5W</td> </tr> </tbody> </table> | 距離 | 電話線速度 | 總PoE電力(Watt) (遠程電力模式) | 300m | 100Mbps | 30W | 600m | 65Mbps | 15W | 700m | 50Mbps | 10W | 800m | 45Mbps | 7W | 1000m | 35Mbps | 5W |
| 距離 | 電話線速度 | 總PoE電力(Watt) (遠程電力模式) | | | | | | | | | | | | | | | | | | |
| 300m | 100Mbps | 30W | | | | | | | | | | | | | | | | | | |
| 600m | 65Mbps | 15W | | | | | | | | | | | | | | | | | | |
| 700m | 50Mbps | 10W | | | | | | | | | | | | | | | | | | |
| 800m | 45Mbps | 7W | | | | | | | | | | | | | | | | | | |
| 1000m | 35Mbps | 5W | | | | | | | | | | | | | | | | | | |
| | Power over Copper, 24AWG 銅線 | | | | | | | | | | | | | | | | | | | |
| LED指示燈 | 啟動: 系統狀態 當地供電: 當地供電模式(見圖二) 遠程供電: 遠程供電(見圖一) | | | | | | | | | | | | | | | | | | | |

| | |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| LED指示燈 | PoE: PoE 每一PoE端口的端口狀態 5/15/30 Watts (顯示總PoE供電負荷) (遠程供電模式) 線路速率: Link/20/40/60/80/100 Mbps |
| 標準支援 | VDSL2 ITU-T G.993.2 VDSL2 Profiles: 17a and 30a |
| 通訊協議支援 | 透明化接軌至更高層協議 |
| 尺寸 | 106 x 62.5 x 135mm (D x W x H) |
| 工作環境 | 工作溫度: -40°C to 75°C 儲存溫度: -40°C to 85°C 濕度: 10% - 95% (無冷凝) |
| Physical/Electrical | 硬化鋁合金外殼, IP30 尺寸: 62 x 135 x 106.5 mm 輸入電壓: 40 to 60 VDC 耗電量: 最高65 Watts 安裝方式: DIN-Rail軌道式安裝, 面板機架安裝 電流過載保護 Automatic short protection |
| 產品保固 | 5 Years |
| 認證 | |
| EMS | CE, FCC |
| 軌道交通 | EN50121-4 |
| Safety | EN60950-1 |
| 防撞擊 | IEC60068-2-27 |
| 防摔 | IEC60068-2-32 |
| 防震 | IEC60068-2-6 |

應用圖

圖1：啟動遠程供電

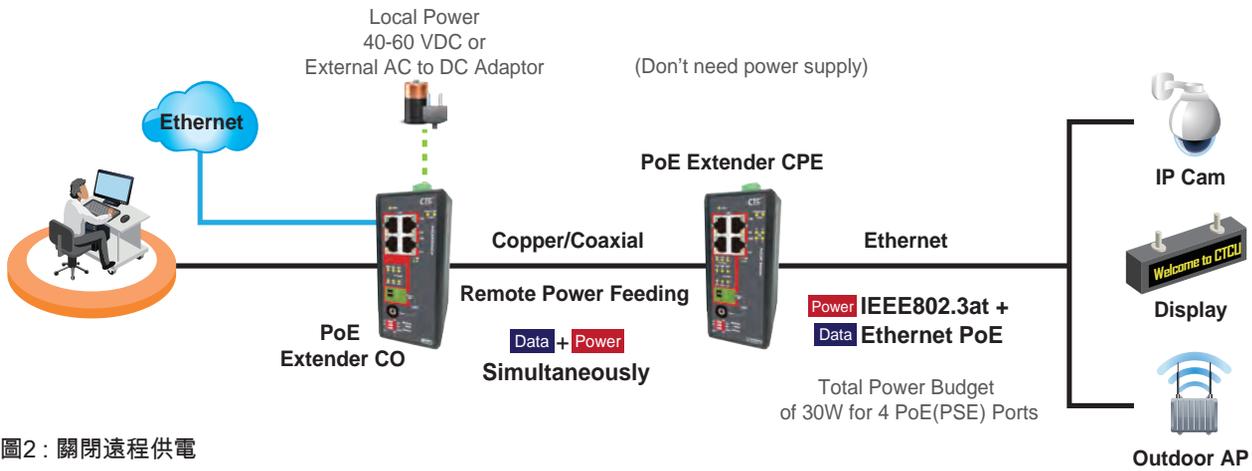
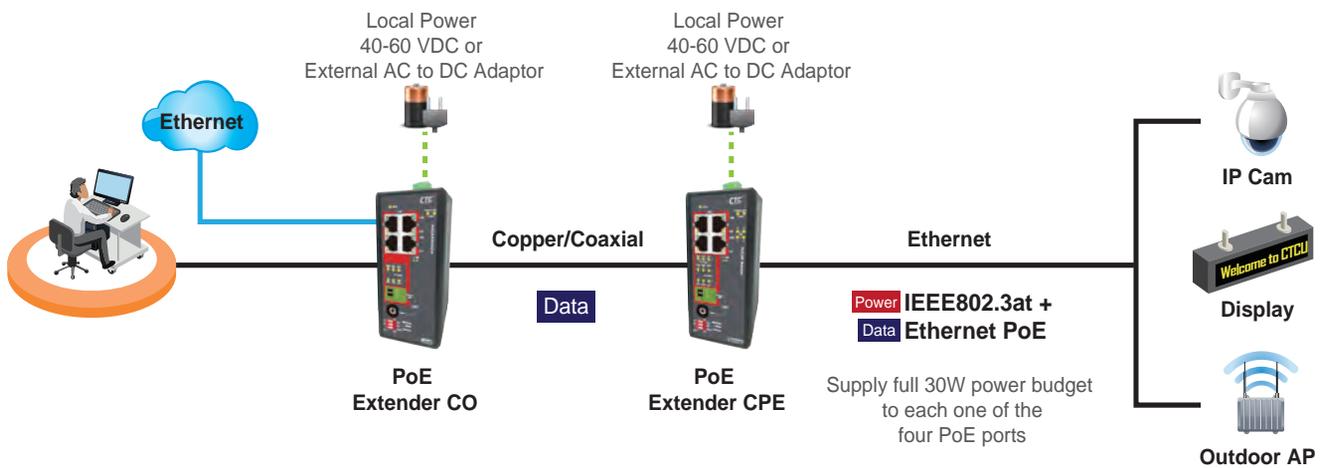
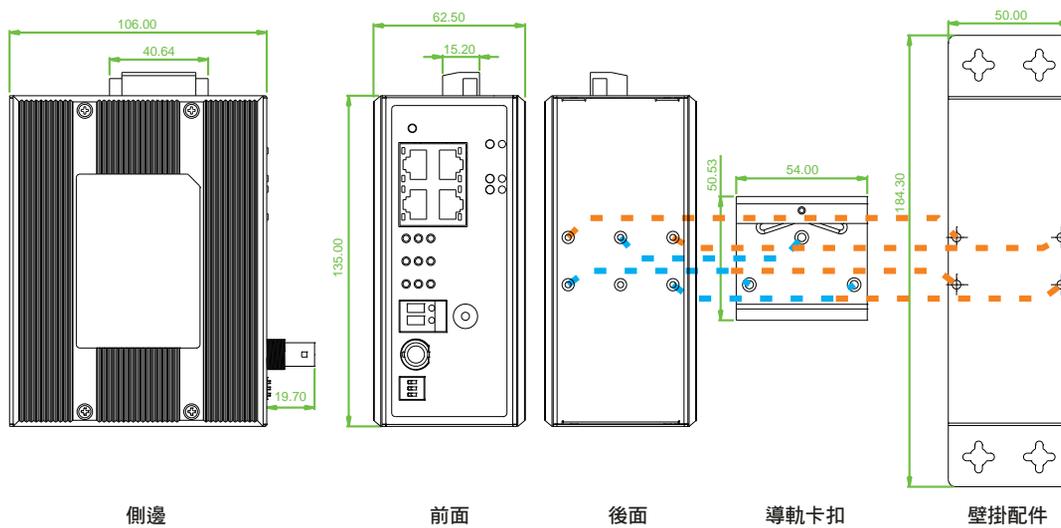


圖2：關閉遠程供電



機構尺寸



訂購資訊

| Model Name | Description |
|-------------|-------------------------------------------------------------------------|
| IEXT224-4PH | Industrial LAN Extender with 4 Ports PoE (1.2km, Phone line or Coaxial) |
| IEXT204-4PH | Industrial LAN Extender with 4 Ports PoE (1.2km, Phone line) |



INJ-IG60-24

Gigabit Ethernet PoE + Injector
IEEE802.3af/af, 15.4/30/36/60/72W



INJ-IG60-24為工業級單一端口千兆乙太網PoE饋電器。PoE供電技術可透過專屬雙絞線穩定地同時傳輸電力與資料。最初IEEE 802.3af-2003 PoE標準可供給15.4W的直流電率至各裝置。改良後的IEEE 802.3at-2009 PoE標準，亦即PoE+或PoE Plus，則可提供高達30W的供電功率。另外，透過非標準方式使用INJ-IG60-24，也就是運用四對Cat-5線供電，電功率更可達60/72W。搭配堅固的Din Rail 軌道式或壁掛安裝外殼，此產品專為惡劣環境，如工業網路，安全自動化應用，智能交通系統（ITS），也適用於許多環境條件超出一般商規產品規格的軍事和公用事業的市場應用中。此系列產品也能達到標準工作溫度範圍（-10~60°C）及寬工作溫度範圍（-40~75°C）以滿足工業自動化特殊應用的需求。

功能特色

- 提供 1 port IEEE802.3at/af PoE 饋電器
- 可使用 DIP SW 選擇設定電源輸出功率 15.4W/30W/36W/60W/72W
- 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(94~96%) 可提供穩定的 55VDC 供給 PoE 輸出
- PoE 電壓穩壓輸出 55VDC
- 由 DIP SW 設定 PoE 模式 A/B
- 可以 DIP SW 設定為 4 對線 (60W/72W) PoE handshake 模式 (例如 AXIS® IP cam)
- 寬溫工作範圍 -40 ~ 75°C (INJ-IG60-E24)
- 通過 CE, FCC, 鐵道交通 EN50121-4 認證
- 符合工業級 EMS(抗電磁干擾), EMI (電磁波干擾), EN61000-6-2、EN61000-6-4 認證標準
- IP30 堅固的金屬外殼、無風扇

產品規格

| | |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 符合標準 | IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX Fast Ethernet IEEE 802.3ab 1000Base-T Gigabit Ethernet IEEE 802.3at, IEEE802.3af |
| PoE Standard | IEEE802.3at, IEEE802.3af |
| PoE RJ-45 Pin腳定義 | RJ-45支援IEEE 802.3at/af Middle-Span Alternative B mode 或 End-Span Alternative A mode, 由 DIP SW設定 End-Span, Alternative A mode Positive (V+): RJ-45 pin 1, 2. Negative (V-): RJ-45 pin 3, 6. Data (1, 2, 3, 6, 4, 5, 7, 8) Middle-Span, Alternative B mode Positive (V+): RJ-45 pin 4,5 Negative (V-): RJ-45 pin 7,8 Data (1, 2, 3, 6, 4, 5, 7, 8) |
| 網路連接器 | 1 個RJ-45 傳輸 10/100/1000Base-T Data, 及 另1個 RJ-45 傳輸 10/100/1000Base-T Data with PoE電源輸出 |
| 網路線規格 | UTP/STP above Cat. 5e cable EIA/TIA-568 100-ohm (100m) |
| LED指示燈 | Power 1 (綠), Power 2 (綠), Fault (琥珀色) End-Span, Alternative A mode Positive (V+): RJ-45 pin 1, 2. Negative (V-): RJ-45 pin 3, 6. Data (1, 2, 3, 6, 4, 5, 7, 8) 4/2 組 (綠) ON: 4 組 PoE 電源輸出 for 60W PoE OFF: 2 組 PoE 電源輸出 |
| DIP SW | SW1 ON: Alternative B mode PoE Power Pin 4, 5, 7, 8 (When DIP SW 3 Off) OFF: Alternative A mode PoE Power Pin 1, 2, 3, 6 (When DIP SW 3 Off) SW2 ON: Hi Power 36W 36W PoE 輸出 OFF: 標準 PoE 802.3af (15.4W), 802.3at (30W) SW3 ON: 4 組 PoE Pin Ultra-High Power 60W/72W PoE 輸出 OFF: 2 組 PoE Pin depend on DIP SW 1,2 SW4 ON: PD-B (比較特殊的 PoE PD, 尤其是 4 對PoE Pin 時, 如 AXIS® Q60) OFF: PD-A (一般的 PoE PD) |
| 電壓極性保護 | 提供 |
| 電流過載保護 | 提供 |

| 電源供應 | 雙電源冗餘備援DC24/48V(20~57VDC),電源輸入 (可拔插式配接器) 內置高效率電源升壓器(升壓效率達97~99%)供給PoE輸出穩定的55 VDC電壓 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------|--------|----------|------|-------|-----|------|-----|--------|-------|------|------|-----|--------|------|-------|--------|----------|------|-------|-------|------|-----|--------|-------|-------|------|-----|--------|
| PoE電源輸出 | 可達最高功率72W, IEEE802.3at 30W, IEEE802.3at High power 36W, IEEE802.3af 15.4W | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 耗電量 | INJ-IG60-24 in 30W mode (2 Pair) <table border="1"> <thead> <tr> <th>輸入電壓</th> <th>總電源消耗</th> <th>設備消耗功率</th> <th>PoE 最大功率</th> <th>升壓效率</th> </tr> </thead> <tbody> <tr> <td>24VDC</td> <td>33W</td> <td>1.4W</td> <td>30W</td> <td>94.90%</td> </tr> <tr> <td>48VDC</td> <td>33.2</td> <td>1.9W</td> <td>30W</td> <td>95.80%</td> </tr> </tbody> </table> INJ-IG60-24 in 60W mode (4 Pair) <table border="1"> <thead> <tr> <th>輸入電壓</th> <th>總電源消耗</th> <th>設備消耗功率</th> <th>PoE 最大功率</th> <th>升壓效率</th> </tr> </thead> <tbody> <tr> <td>24VDC</td> <td>65.2W</td> <td>1.4W</td> <td>60W</td> <td>94.10%</td> </tr> <tr> <td>48VDC</td> <td>64.7W</td> <td>1.9W</td> <td>60W</td> <td>95.50%</td> </tr> </tbody> </table> | 輸入電壓 | 總電源消耗 | 設備消耗功率 | PoE 最大功率 | 升壓效率 | 24VDC | 33W | 1.4W | 30W | 94.90% | 48VDC | 33.2 | 1.9W | 30W | 95.80% | 輸入電壓 | 總電源消耗 | 設備消耗功率 | PoE 最大功率 | 升壓效率 | 24VDC | 65.2W | 1.4W | 60W | 94.10% | 48VDC | 64.7W | 1.9W | 60W | 95.50% |
| 輸入電壓 | 總電源消耗 | 設備消耗功率 | PoE 最大功率 | 升壓效率 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24VDC | 33W | 1.4W | 30W | 94.90% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 48VDC | 33.2 | 1.9W | 30W | 95.80% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 輸入電壓 | 總電源消耗 | 設備消耗功率 | PoE 最大功率 | 升壓效率 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24VDC | 65.2W | 1.4W | 60W | 94.10% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 48VDC | 64.7W | 1.9W | 60W | 95.50% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 告警繼電器規格 | Relay outputs with current carrying capacity of 1 A @24VDC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 可插拔式配接器 | 提供一個6針可拔插式配接器。內含2個備援輸入電源，一個告警繼電器 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 工作溫度 | -10 ~ 60°C (INJ-IG60-24) -40 ~ 75°C (INJ-IG60-E24) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 工作濕度 | 5% to 95% (無冷凝) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 儲存溫度 | -40 ~ 85°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 外殼 | 金屬外殼、IP30防護、無風扇 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 尺寸 | 106 x 31.6 x 142 mm (D x W x H) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 重量 | 0.425公斤 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 安裝方式 | Din Rail 軌道式安裝及壁掛式 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MTBF | 763,725Hrs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 產品保固 | 5 年 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| 認證 | |
|-----------------|---------------------------------------------------|
| EMC | CE |
| EMI | FCC Part 15 Subpart B Class A, CE EN55022 Class A |
| 軌道交通 | EN50121-4 |
| 重工業環境 抗電磁干擾 | EN 61000-6-2 |
| 重工業環境 電磁輻射干擾 | EN 61000-6-4 |

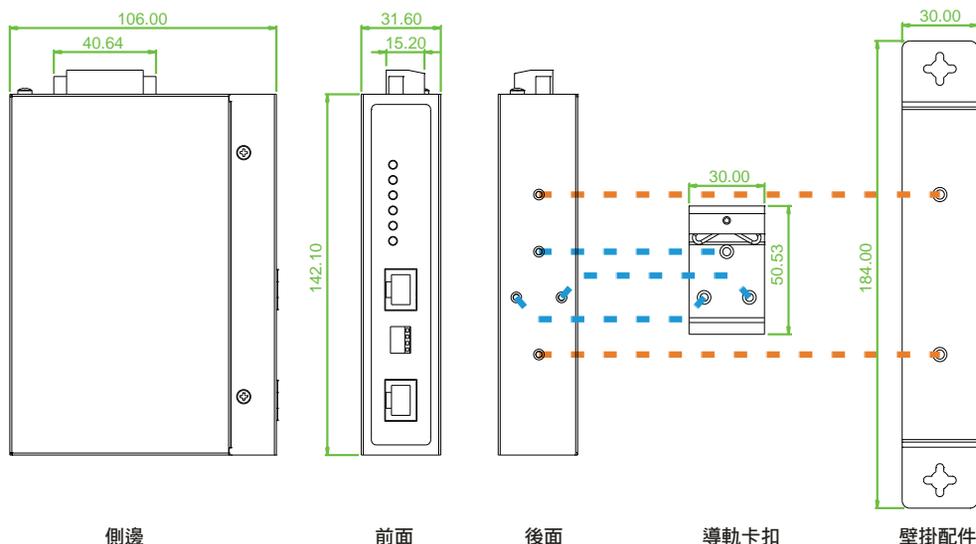
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|--------------------|-----------------------------------------------------|
| EMS 抗電磁干擾 等級 | EN61000-4-2 (ESD) Level 3, Criteria B |
| | EN61000-4-3 (RS) Level 3, Criteria A |
| | EN61000-4-4 (EFT) Level 3, Criteria A |
| | EN 61000-4-5 (Surge) Level 3, Criteria B |
| | EN 61000-4-6 (CS) Level 3, Criteria A |
| Safety | EN61000-4-8 (PFMF) Field strength 300A/m Criteria A |
| | UL60950-1 (pending) |
| | 防撞擊 IEC 60068-2-27 |
| | 防摔 IEC 60068-2-32 |
| 防震 IEC 60068-2-6 | |

應用圖



圖例：INJ-IG60-24 Gigabit Ethernet PoE Injector

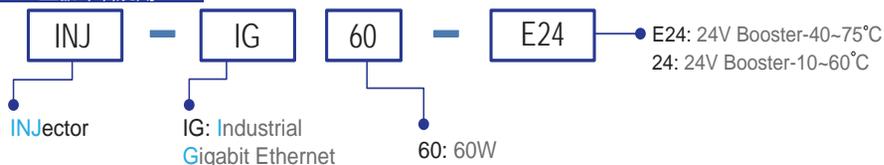
機構尺寸



訂購資訊

| 型號 | Ethernet | | PoE埠 | | 輸入電壓 (Boost) | 認證 | | | 操作溫度 |
|--------------|-----------------------|----------------------|-----------------|--|-----------------|-------------------|----------------------------|-----------|----------|
| | 10/100/1000 Base-T | IEEE802.3at (PSE) | Power Budget | | | 鐵道交通 EN50121-4 | EN61000-6-2 EN61000-6-4 | CE FCC | |
| INJ-IG60-24 | 1 | 1 | 15/30/36/60/72W | | 24/48VDC | V | V | V | -10~60°C |
| INJ-IG60-E24 | 1 | 1 | 15/30/36/60/72W | | 24/48VDC | V | V | V | -40~75°C |

型號命名規則



選購配件

| | |
|-----------|-------------------------------------------------------------------------------------|
| DR-120-24 | Industrial Power, Input 88 ~ 132VAC / 176 ~ 264VAC, Output 24VDC, 120W, -10 ~ +60°C |
| 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 |
| MDR-60-24 | Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 60W, -20 ~ +70°C |

NEW



INJ-IG01-PH

Gigabit Ethernet PoE+ Injector
IEEE802.3at/af, 15.4/30/36/60W

INJ-IG01-PH為工業級單一端口千兆乙太網PoE饋電器。PoE供電技術可透過專屬雙絞線穩定地同時傳輸電力與資料。最初 IEEE 802.3af-2003 PoE標準可供給15.4W的直流電率至各裝置。改良後的IEEE 802.3at-2009 PoE標準，亦即PoE+或PoE Plus，則可提供高達30W的供電功率。另外，透過非標準方式使用INJ-IG01-PH，也就是運用四對Cat-5線供電，電功率更可達60W。搭配堅固的Din Rail 軌道式或壁掛安裝外殼，此產品專為惡劣環境，如工業網路，安全自動化應用，智能交通系統（ITS），也適用於許多環境條件超出一般商規產品規格的軍事和公用事業的市場應用中。此系列產品也能達到標準工作溫度範圍（-10~60°C）及寬工作溫度範圍（-40~75°C）以滿足工業自動化特殊應用的需求。

功能特色

- 提供 1 port IEEE802.3at/af PoE 饋電器
- 可使用 DIP SW 選擇設定電源輸出功率 15.4W/30W/36W/60W
- 由 DIP SW 設定 PoE 模式 A/B
- 可以 DIP SW 設定為 4 對線 (60W) PoE handshake 模式 (例如 AXIS® IP cam)
- 寬溫工作範圍 -40 ~ 75°C (INJ-IG01-PH)
- 通過 CE, FCC, 鐵道交通 EN50121-4 認證
- 符合工業級 EMS(抗電磁干擾)，EMI (電磁波干擾)，EN61000-6-2、EN61000-6-4 認證標準
- IP30 堅固的金屬外殼、無風扇

產品規格

| | |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 符合標準 | IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX Fast Ethernet IEEE 802.3ab 1000Base-T Gigabit Ethernet IEEE 802.3at, IEEE802.3af |
| PoE Standard | IEEE802.3at, IEEE802.3af |
| PoE RJ-45 Pin腳定義 | RJ-45支援IEEE 802.3at/af Middle-Span Alternative B mode 或 End-Span Alternative A mode, 由 DIP SW設定 End-Span, Alternative A mode Positive (V+): RJ-45 pin 1, 2. Negative (V-): RJ-45 pin 3, 6. Data (1, 2, 3, 6, 4, 5, 7, 8) Middle-Span, Alternative B mode Positive (V+): RJ-45 pin 4, 5 Negative (V-): RJ-45 pin 7, 8 Data (1, 2, 3, 6, 4, 5, 7, 8) |
| 網路連接器 | 1個RJ-45 傳輸 10/100/1000Base-T Data, 及 另1個 RJ-45 傳輸 10/100/1000Base-T Data with PoE電源輸出 |
| 網路線規格 | UTP/STP above Cat. 5e cable EIA/TIA-568 100-ohm (100m) |
| LED指示燈 | Power (綠) PoE狀態(綠) 閃爍: PoE Fault (過載或短路) ON: PoE功能正常 OFF:PoE無電力輸出 |
| DIP SW | SW1 ON: Alternative B mode PoE Power Pin 4, 5, 7, 8 (When DIP SW 3 Off) OFF: Alternative A mode PoE Power Pin 1, 2, 3, 6 (When DIP SW 3 Off) SW2 ON: Hi Power 36W 36W PoE 輸出 OFF: 標準 PoE 802.3af (15.4W), 802.3at (30W) SW3 ON:4 組 PoE Pin Ultra-High Power 60W/72W PoE輸出 OFF: 2 組 PoE Pin depend on DIP SW 1,2 SW4 ON: PD-B (比較特殊的 PoE PD, 尤其是 4 對PoE Pin 時, 如 AXIS® Q60) OFF: PD-A (一般的 PoE PD) |
| 電壓極性保護 | 提供 |
| 電流過載保護 | 提供 |
| 電源供應 | DC 48V(44~57VDC) (可拔插式配接器) |
| PoE電源輸出 | 可達最高功率60W, IEEE802.3at 30W, IEEE802.3at High power 36W, IEEE802.3af 15.4W |

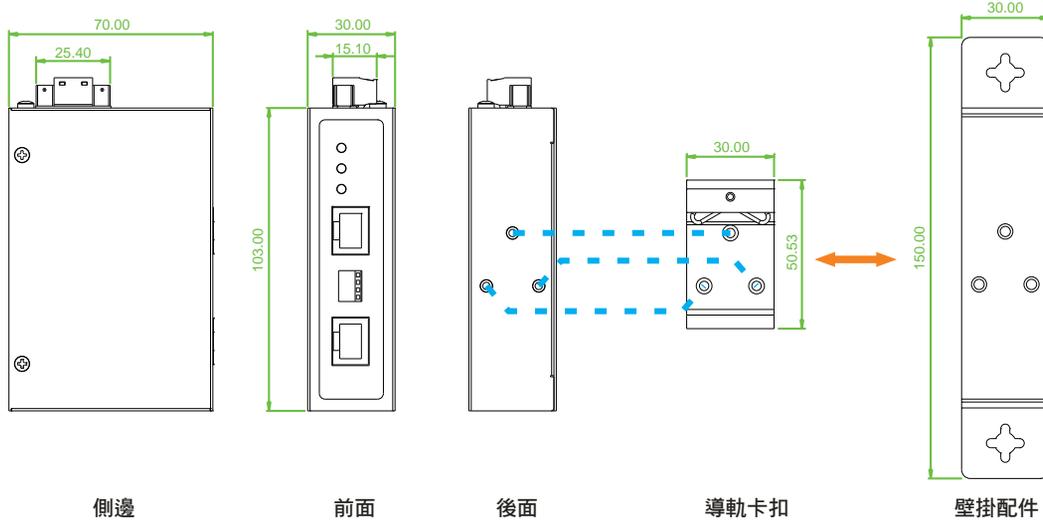
| | | | |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|
| 耗電量 | | In 30W mode (2 Pairs) | In 60W mode (4 Pairs) |
| Input Power Consumption (Input 48VDC) | | 31.1W | 62.8W |
| PoE Output Power | | 30W | 60W |
| 可插拔式配接器 | 提供一個2 針可拔插式配接器可連接輸入電源 | | |
| 工作溫度 | -10 ~ 60°C (INJ-IG01-PH) -40 ~ 75°C (INJ-IG01-PHE) | | |
| 工作濕度 | 5% to 95% (無冷凝) | | |
| 儲存溫度 | -40 ~ 85°C | | |
| 外殼 | 金屬外殼, IP30防護, 無風扇 | | |
| 尺寸 | 70 x 30 x 103 mm (D x W x H) | | |
| 重量 | 215公克 | | |
| 安裝方式 | Din Rail 軌道式安裝及壁掛式 | | |
| MTBF | 409,994 小時 (MIL-HDBK-217) | | |
| 產品保固 | 5 年 | | |
| 認證 | | | |
| EMC | CE | | |
| EMI | FCC Part 15 Subpart B Class A, CE EN55022 Class A | | |
| 軌道交通 | EN50121-4 | | |
| 重工業環境抗電磁干擾 | EN 61000-6-2 | | |
| 重工業環境電磁輻射干擾 | EN 61000-6-4 | | |
| EMS | EN61000-4-2 (ESD) Level 3, Criteria B | | |
| 抗電磁干擾等級 | EN61000-4-3 (RS) Level 3, Criteria A EN61000-4-4 (EFT) Level 3, Criteria A EN 61000-4-5 (Surge) Level 3, Criteria B EN 61000-4-6 (CS) Level 3, Criteria A EN61000-4-8 (PFMF) Field strength 300A/m Criteria A | | |
| 防撞擊 | IEC 60068-2-27 | | |
| 防摔 | IEC 60068-2-32 | | |
| 防震 | IEC 60068-2-6 | | |

應用圖



圖例：INJ-IG01-PH Gigabit Ethernet PoE Injector

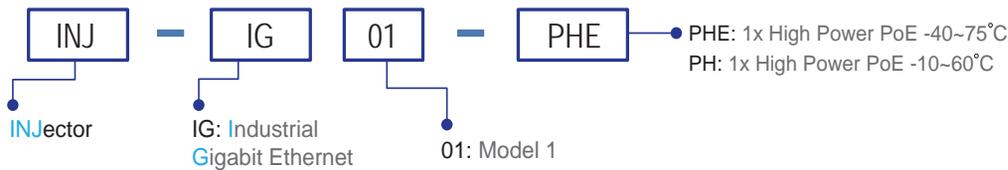
機構尺寸



訂購資訊

| 型號 | Ethernet | | PoE埠 | | 認證 | | | | 操作溫度 |
|------------|--------------------|-------------------|--------------|----------------|-------------------------|----|-----|----------|------|
| | 10/100/1000 Base-T | IEEE802.3at (PSE) | Power Budget | 鐵道交通 EN50121-4 | EN61000-6-2 EN61000-6-4 | CE | FCC | | |
| INJ-IG01 | 1 | 1 | 15/30/36/60 | V | V | V | V | -10~60 C | |
| INJ-IG01-E | 1 | 1 | 15/30/36/60 | V | V | V | V | -40~75 C | |

型號命名規則



選購配件

| | |
|-----------|-------------------------------------------------------------------------------------|
| MDR-40-24 | Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 40W, -20 ~ +70°C |
| DR-120-24 | Industrial Power, Input 88 ~ 132VAC / 176 ~ 264VAC, Output 24VDC, 120W, -10 ~ +60°C |
| IND-WMK03 | Wall Mount kit for Industrial product (Compact, 150x30mm) |



IGS-401F

4x 10/100/1000Base-T+ 1x 1000Base-SX/LX

IGS-402F

4x 10/100/1000Base-T+ 2x 1000Base-SX/LX

IGS-402S

4x 10/100/1000Base-T+ 2x 100/1000Base-X SFP

此系列產品為4個10/100/1000Base-T，及一或兩個1000Base-X 光纖端口的非網管型工業級千兆乙太交換器，可提供穩定且可靠的乙太傳輸。搭配堅固的Din Rail 軌道式或壁掛安裝外殼。此產品專為惡劣環境，如工業網路、安全自動化應用、交通監控、安防自動化應用、IP surveillance、城市安防及智能交通系統（ITS），也適用於許多環境條件超出一般商規產品規格的軍事和公用事業的市場應用中。此系列產品也能達到標準工作溫度範圍（-10~60°C）及寬工作溫度範圍（-40~75°C）以滿足工業自動化特殊應用的需求。

功能特色

- 4x 10/100/1000Base-T RJ45 + 1x 1000Base-SX/LX Fiber (IGS-401F)
- 4x 10/100/1000Base-T RJ45 + 2x 1000Base-SX/LX Fiber (IGS-402F)
- 4x 10/100/1000Base-T RJ45 + 2x 100/1000Base-X SFP (IGS-402S)
- 支援 broadcast storm protection
- 支援 power failure alarm message by relay
- 支援 DIP SW 可設定 broadcast storm protection，power failure alarm，SFP 速度
- 支援 Flow control
- 支援 Jumbo Frame
- 支援 auto-negotiation and auto-MDI/MDI-X
- 雙電源輸入 12/24/48VDC(9.6~60VDC) 冗餘備援
- 金屬外殼、IP30 防護、無風扇
- Din Rail 軌道式安裝或壁掛式
- 寬溫工作範圍（-40 ~ 75°C）“E”系列產品
- 通過 UL60950-1, EN50121-4, CE, FCC 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

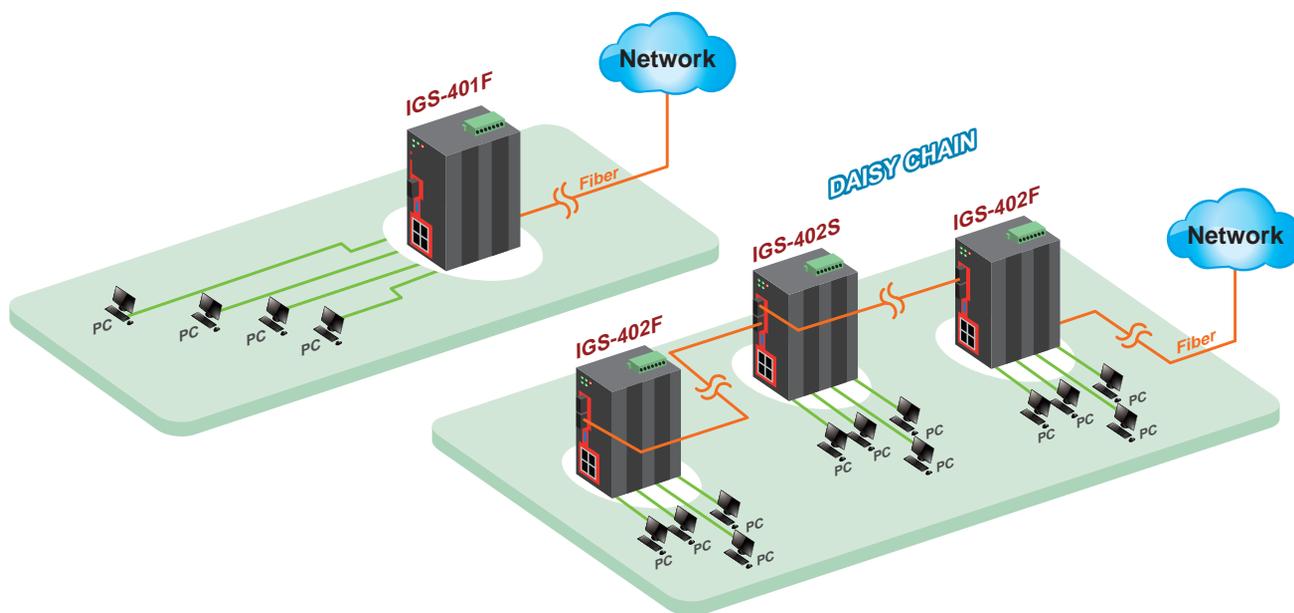
| | |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IEEE標準 | IEEE 802.3 10Base-T 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 802.3x Flow Control and Back Pressure |
| 交換架構 | Back-plane (Switching Fabric): 10Gbps (IGS-401F) Back-plane (Switching Fabric): 12Gbps (IGS-402S, IGS-402F) |
| 數據處理架構 | Store and Forward |
| Flow Control | IEEE 802.3x flow control (全雙工), back pressure(半雙工) |
| Provides Broadcast Storm Protection | 提供 |
| Jumbo Frame | 10K Bytes |
| MAC Address Table | 8K |
| Packet Buffer Size | 1Mbits |
| 網路連接器 | 4 x RJ-45 10/100/1000Base-TX auto negotiation speed, Auto MDI/MDI-X function, Full/Half duplex 1 or 2 1000Base-X Fiber SC connector (IGS-401F, IGS-402F) 2 100/1000Base-X SFP connector (IGS-402S) |
| 網路線規格 | UTP/STP above Cat. 5e cable EIA/TIA-568 100-ohm (100m) Fiber Cable (Multi-mode): 50/125um, 62.5/125um Fiber Cable (Single-mode): 9/125um |
| 通訊協議 | CSMA/CD |
| LED指示燈 | Power 1 (綠), Power 2 (綠), Fault (琥珀色) 每個RJ-45埠: LNK/ACT 1000(黃), LNK/ACT 10/100(綠) Fiber: LNK/ACT(綠) |

| | |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DIP SW | DIP 1 ON : Disable power failure alarm OFF : Enable power failure alarm DIP 2 ON : Disables broadcast storm protection OFF : Enable broadcast storm protection Fiber 2 速度 (IGS-402S) DIP 3 ON : 100Base-FX SFP OFF : Gigabit SFP Fiber 1 速度 (IGS-402S) DIP 4 ON : 100Base-FX SFP OFF : Gigabit SFP |
| 電壓極性保護 | 提供 |
| 電流過載保護 | 提供 |
| 電源供應 | 雙電源輸入12/24/48VDC(9.6~60VDC) 冗餘備援 (可拔插式配接器) Provide DC Power JACK adapter cable for external power supply |
| 耗電量 | 7.9W (IGS-402F) 7.8W (IGS-401F) 7.9W (IGS-402S) |
| 告警繼電器規格 | Relay outputs with current carrying capacity of 1 A @24VDC |
| 可插拔式配接器 | 提供一個6針可拔插式配接器。內含2個備援輸入電源，一個告警繼電器 |
| 工作溫度 | -10 ~ 60°C (IGS-402S, IGS-401F, IGS-402F) -40 ~ 75°C (IGS-402S-E, IGS-401F-E, IGS-402F-E) |
| 工作濕度 | 5% to 95% (無冷凝) |
| 儲存溫度 | -40 ~ 85°C |
| 外殼 | 金屬外殼、IP30防護、無風扇 |
| 尺寸 | 106 x 62.5 x 134.8 mm (D X W X H) |
| 重量 | 0.84公斤 (IGS-402S) 0.67公斤 (IGS-401F) 0.68公斤 (IGS-402F) |
| 安裝方式 | Din Rail 軌道式安裝或壁掛式 |
| MTBF | 438,031 Hours (IGS-402S) 407,596 Hours (IGS-401F) 391,633 Hours (IGS-402F) (MIL-HDBK-217) |
| 產品保固 | 5年 |

| 認證 | |
|------------------------------------|---------------------------------------------------|
| EMC/EMS | CE |
| EMI (Electromagnetic Interference) | FCC Part 15 Subpart B Class A, CE EN55022 Class A |
| 軌道交通 | 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 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 |
| 防撞擊 | IEC 60068-2-27 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC 60068-2-6 |

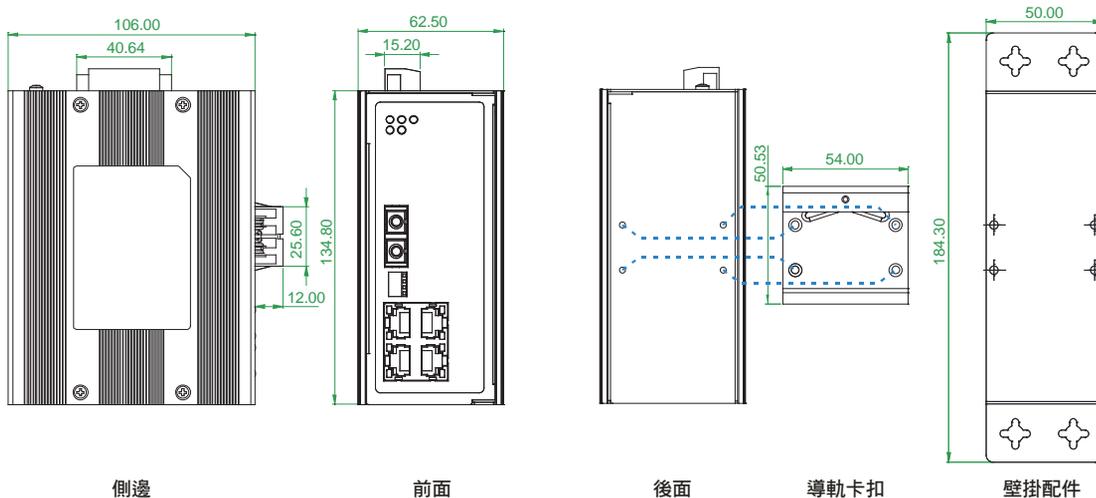
應用圖



圖例：IGS-402S, IGS-401F & IGS-402F Gigabit Ethernet Switch Transmission

機構尺寸

IGS-401F



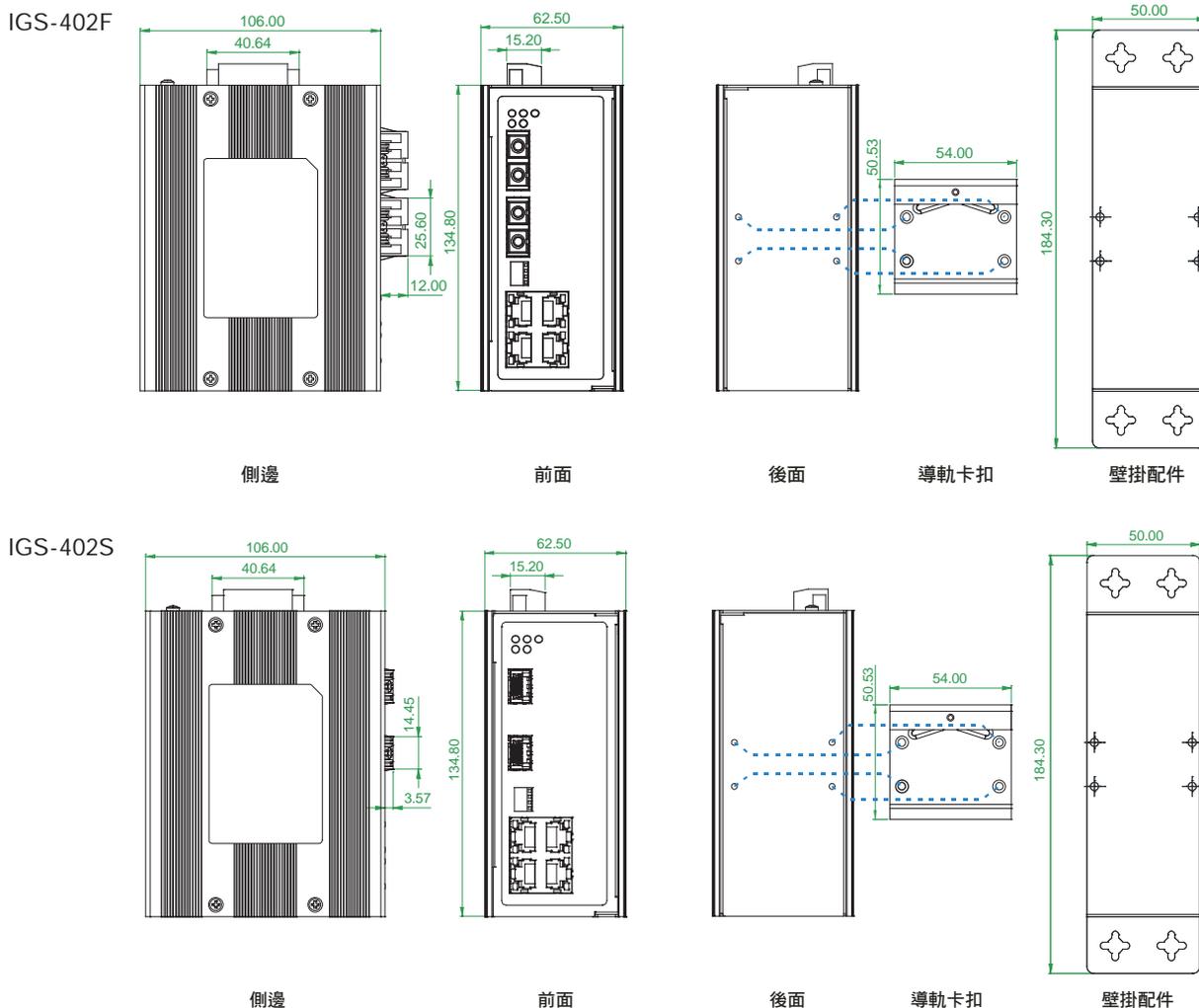
側邊

前面

後面

導軌卡扣

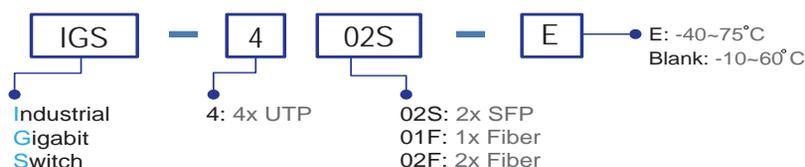
壁掛配件



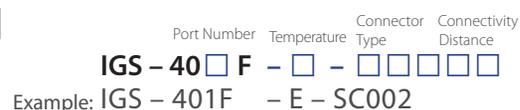
訂購資訊

| 型號 | 總埠數 | UTP Port | | 光纖 | | 認證 | | | | 操作溫度 |
|------------|-----|--------------------|------------|----------------|--------------|----------------|-------------------------|----|-----|----------|
| | | 10/100/1000 Base-T | 1000Base-X | 100/1000Base-X | 安全 UL60950-1 | 鐵道交通 EN50121-4 | EN61000-6-2 EN61000-6-4 | CE | FCC | |
| IGS-401F | 5 | 4 | 1 SC | — | V | V | V | V | V | -10~60°C |
| IGS-401F-E | 5 | 4 | 1 SC | — | V | V | V | V | V | -40~75°C |
| IGS-402F | 6 | 4 | 2 SC | — | V | V | V | V | V | -10~60°C |
| IGS-402F-E | 6 | 4 | 2 SC | — | V | V | V | V | V | -40~75°C |
| IGS-402S | 6 | 4 | — | 2 SFP | V | V | V | V | V | -10~60°C |
| IGS-402S-E | 6 | 4 | — | 2 SFP | V | V | V | V | V | -40~75°C |

型號命名規則



| Fiber Connector | Connectivity Distance |
|----------------------------|----------------------------------------------------------------------------------|
| SC | SC001: 500m (SC, M/M) 002: 2km (M/M) SC020: 20km (SC, S/M) SC040: 40km (SC, S/M) |
| (IGS-401F & IGS-402F only) | SC020A: WDM 20km A type (TX:1310nm) SC020B: WDM 20km B type (TX:1550nm) |



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 交換器 | Compatible, Reliable, 5-year Warranty |

SFP命名規則



NEW



CE FCC

EN50121-4

EN61000-6-2
EN61000-6-4

IGS-501S

5x 10/100/1000Base-T + 1x 100/1000Base-X SFP

IGS-500

5x 10/100/1000Base-T

IGS-800

8x 10/100/1000Base-T

此系列產品為5~8個10/100/1000Base-T，及一或零個1000Base-X SFP端口的非網管型工業級千兆乙太交換器，可提供穩定且可靠的乙太傳輸。搭配堅固的Din Rail 軌道式或壁掛安裝外殼。此產品專為惡劣環境，如工業網路、安全自動化應用、交通監控、安防自動化應用、IP surveillance、城市安防及智能交通系統（ITS），也適用於許多環境條件超出一般商規產品規格的軍事和公用事業的市場應用中。此系列產品也能達到標準工作溫度範圍（-10~60°C）及寬工作溫度範圍（-40~75°C）以滿足工業自動化特殊應用的需求。

功能特色

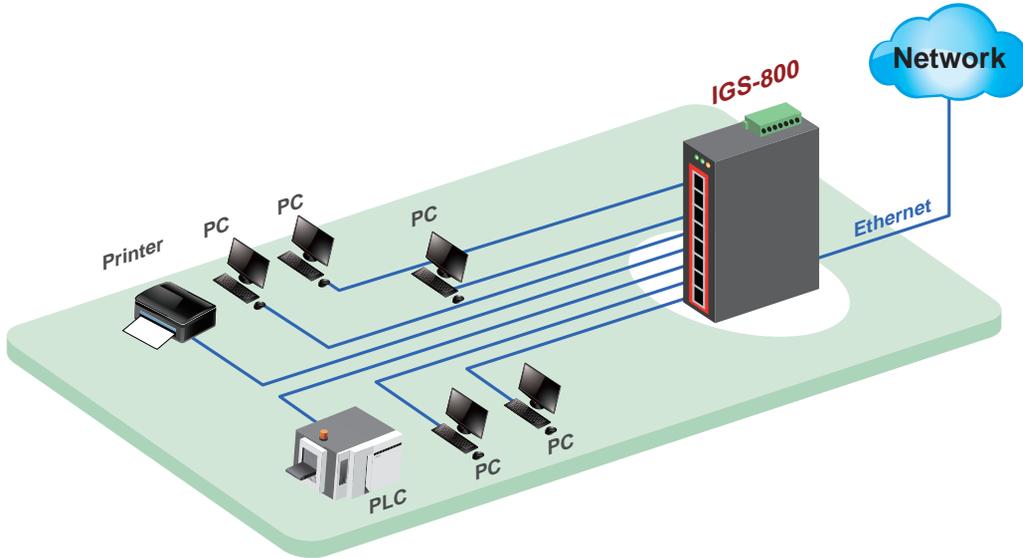
- 5x 10/100/1000Base-T RJ-45 + 1x100/1000Base-X SFP (IGS-501S)
- 5x 10/100/1000Base-T RJ-45 (IGS-500)
- 8x 10/100/1000Base-T RJ-45 (IGS-800)
- 支援 broadcast storm protection
- 支援 power failure alarm message by relay
- 支援 Flow control
- 支援 Jumbo Frame
- 支援 auto-negotiation and auto-MDI/MDI-X
- 雙電源輸入 12/24/48VDC(9.6~60VDC) 冗餘備援
- 金屬外殼、IP30 防護、無風扇
- Din Rail 軌道式安裝或壁掛式
- 寬溫工作範圍（-40 ~ 75°C）“E”系列產品
- 通過 EN50121-4, CE, FCC 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

| | |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IEEE標準 | IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX, 100Base-FX, Fast Ethernet IEEE 802.3ab 1000Base-T Gbit/s Ethernet over twisted pair IEEE802.3x Flow Control IEEE 802.3z 1000Base-X Gbit/s Ethernet over Fiber-Optic |
| 交換架構 | Back-plane (Switching Fabric): 12Gbps (IGS-501S) 10Gbps (IGS-500) 16Gbps (IGS-800) |
| 數據處理架構 | Store and Forward |
| Flow Control | IEEE 802.3x flow control (全雙工), back pressure(半雙工) |
| Provides Broadcast Storm Protection | 提供 |
| Jumbo Frame | 9.6KBytes |
| MAC Address Table | 8K |
| Packet Buffer Size | 128KByte |
| 網路線規格 | 10Base-T: 2-pair UTP/STP Cat. 5 cable EIA/TIA-568 100-ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5 cable EIA/TIA-568 100-ohm (100m) Fiber Cable (Multi-mode): 50/125um, 62.5/125um (限IGS-501S) Fiber Cable (Single-mode): 9/125um (限IGS-501S) |
| 通訊協議 | CSMA/CD |
| LED指示燈 | Power 1 (綠), Power 2 (綠), Fault (琥珀色) 每個RJ-45埠: LNK/ACT 1000(黃), LNK/ACT 10/100(綠), Fiber: LNK/ACT(綠) |
| DIP SW | DIP 1 ON: Disable power failure alarm OFF: Enable power failure alarm DIP 2 ON: Disables broadcast storm protection OFF: Enable broadcast storm protection Green Ethernet DIP 3 ON: 關閉Green Ethernet OFF: 開啟802.3az Green Ethernet SFP 速度(限IGS-501S) DIP 4 ON: 100M OFF: 1000M |
| 電壓極性保護 | 提供, 以保護輸入電源 |
| 電流過載保護 | 提供 |
| 電源供應 | 雙電源輸入12/24/48VDC(9.6~60VDC) 冗餘備援, 或AC 電源輸入24VAC(18~36VAC)(可拔插式配接器) Provide DC Power JACK adapter cable for external power supply |

| | | | | |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------------------------------------------------------------|---------|
| 耗電量 | 輸入電壓 | IGS-500 | IGS-501S | IGS-800 |
| | 12VDC | 3.3W | 3.9W | 7.0W |
| | 24VDC | 3.4W | 3.9W | 7.0W |
| | 48VDC | 4.8W | 5.3W | 8.7W |
| 告警繼電器規格 | Relay outputs with current carrying capacity of 1 A @24VDC, NC | | | |
| 可插拔式配接器 | 提供一個6針可拔插式配接器。內含2個備援輸入電源, 一個告警繼電器 | | | |
| 工作溫度 | -10°C~60°C (IGS-501S, IGS-500, IGS-800) -40°C~75°C (IGS-501S-E, IGS-500-E, IGS-800-E) | | | |
| 工作濕度 | 5% to 95% (無冷凝) | | | |
| 儲存溫度 | -40 ~ 85°C | | | |
| 外殼 | 金屬外殼、IP30防護、無風扇 | | | |
| 尺寸 | 106 x 31.6 x 142 mm (D x W x H) | | | |
| 重量 | 0.415公斤 (IGS-501S) | | 0.41公斤 (IGS-500) 0.44公斤 (IGS-800) | |
| 安裝方式 | Din Rail 軌道式安裝或壁掛式 | | | |
| MTBF | 569,039小時 (IGS-501S) | | 612,034小時 (IGS-500) 301,121小時 (IGS-800) (MIL-HDBK-217) | |
| 產品保固 | 5年 | | | |
| 認證 | EMC/EMS CE EMI (Electromagnetic Interference) FCC Part 15 Subpart B Class A, CE EN55022 Class A 軌道交通 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 | | | |
| 防撞擊 | IEC 60068-2-27 | | | |
| 防摔 | IEC 60068-2-32 | | | |
| 防震 | IEC 60068-2-6 | | | |

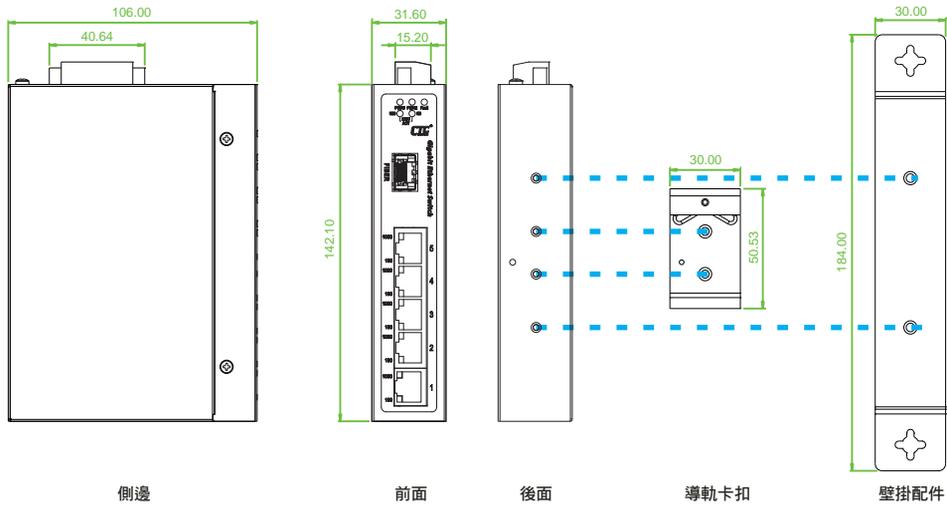
應用圖



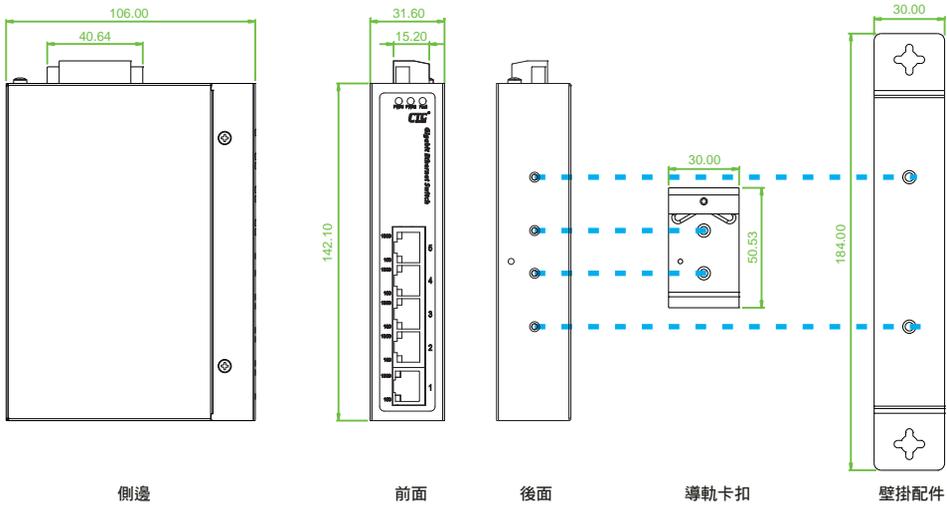
圖例：IGS-800 Gigabit Ethernet Switch Transmission

機構尺寸

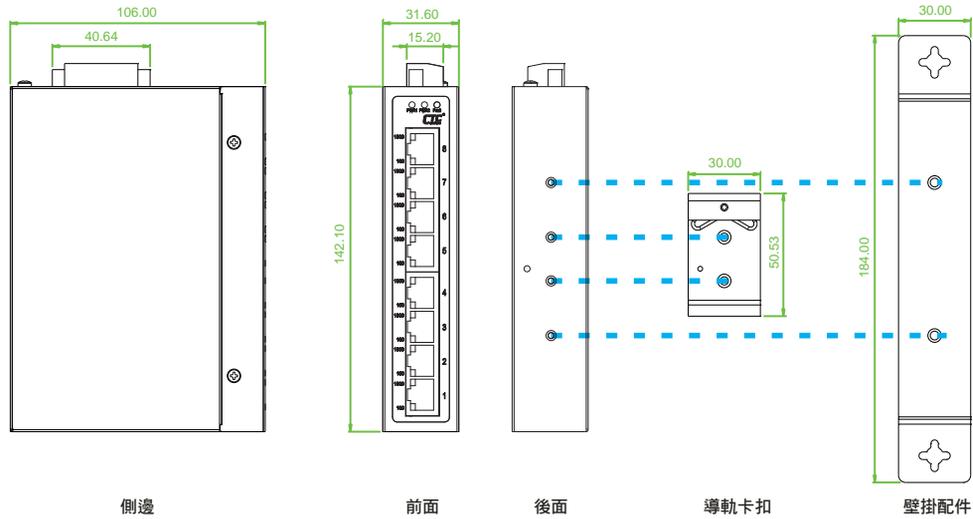
IGS-501S



IGS-500



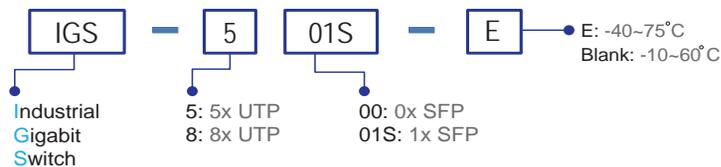
IGS-800



訂購資訊

| 型號 | 總埠數 | UTP | | 光纖 | | 認證 | | | 操作溫度 | |
|------------|-----|--------------------|--|----------------|--|----------------|----------------------------|----|------|----------|
| | | 10/100/1000 Base-T | | 100/1000Base-X | | 鐵道交通 EN50121-4 | EN61000-6-2 EN61000-6-4 | CE | | FCC |
| IGS-501S | 6 | 5 | | 1x SFP | | V | V | V | V | -10~60 C |
| IGS-501S-E | 6 | 5 | | 1x SFP | | V | V | V | V | -40~75 C |
| IGS-500 | 5 | 5 | | — | | V | V | V | V | -10~60 C |
| IGS-500-E | 5 | 5 | | — | | V | V | V | V | -40~75 C |
| IGS-800 | 8 | 8 | | — | | V | V | V | V | -10~60 C |
| IGS-800-E | 8 | 8 | | — | | V | V | V | V | -40~75 C |

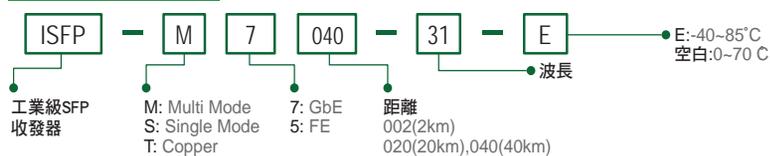
型號命名規則



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 | Transceiver Compatible, Reliable, 5-year Warranty |

SFP命名規則



Temperature
IGS - 500 - □
 Example: IGS - 500 - E



IFS-401F

4x10/100Base-TX +
1x100Base-FX

IFS-500

5x10/100Base-TX

IFS-402F

4x10/100Base-TX +
2x100Base-FX

IFS-800

8x10/100Base-TX

此系列產品為4~8個10/100Base-TX，及0~2個100Base-FX光纖端口的非網管型工業級千兆乙太交換器，可提供穩定且可靠的乙太網路傳輸。搭配堅固的 Din Rail 軌道式或壁掛安裝外殼，此產品專為惡劣環境，如工業網路、安全自動化應用、智能交通系統（ITS），也適用於許多環境條件超出一般商規產品規格的軍事和公用事業的市場應用中。此系列產品也能達到標準工作溫度範圍（-10~60℃）及寬工作溫度範圍（-40~75℃）以滿足工業自動化特殊應用的需求。

功能特色

- 雙電源輸入 12/24/48VDC(9.6~60VDC) 冗餘備援
- 金屬外殼、IP30 防護、無風扇
- 寬溫工作範圍（-40 ~ 75℃）“E” 系列產品
- 提供 broadcast storm protection
- 支援 DIP SW for alarm setting and broadcast storm protection
- 支援 power failure alarm message by relay
- 支援 Flow control
- 通過 CE, FCC, 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

產品規格

| | |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IEEE Standard | IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX and 100Base-FX Fast Ethernet IEEE 802.3x Flow Control and Back Pressure |
| Switch Architecture | Back-plane (Switching Fabric) : 1.0 Gbps (IFS-401F) 1.2Gbps (IFS-402F) 1.0 Gbps (IFS-500) 1.6Gbps (IFS-800) |
| Data Processing | Store and Forward |
| 封包傳輸速率 | 14,880pps (10Base-T) 148,800pps (100Base-TX) |
| Flow Control | IEEE 802.3x flow control (全雙工), back pressure(半雙工) |
| Provides Broadcast Storm Protection | 提供 |
| MAC Address Table | 2K |
| Packet Buffer Size | 448Kbits |
| 網路連接器 | 4X RJ-45, 1 Fiber (IFS-401F) 4X RJ-45, 2 Fiber (IFS-402F) 5x RJ-45 (IFS-500) 8x RJ-45 (IFS-800) RJ-45Port: 自動 MDI/MDI-X function, 10/100Base-TX auto negotiation, 全/半雙工 |
| 網路線規格 | 100Base-FX Fiber Port : SC/ST, Multi Mode/Single Mode 10Base-T: 2-pair UTP/STP Cat. 5 cable EIA/TIA-568 100-ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5 cable EIA/TIA-568 100-ohm (100m) Fiber Cable (Multi-mode): 50/125um~62.5/125um Fiber Cable (Single-mode): 8/125um~10/125um 波長: 1310nm (Multi-mode/Single-mode) 適用距離: 2KM (Multi-Mode) 30KM (Single-Mode) 50KM (Single Mode) |
| 通訊協議 | CSMA/CD |
| LED指示燈 | Power 1 (綠), Power 2 (綠), Fault (琥珀色) RJ-45 連接埠 : Link/Active(綠), 速度100(黃) 光纖埠 per Port: Link/Active(綠) (IFS-401F, IFS-402F) |
| DIP SW | DIP 1 OFF: Enable power failure alarm ON: Disable power failure alarm DIP 2 OFF: Enable broadcast storm protection ON: Disables broadcast storm protection |
| 電壓極性保護 | 提供 |
| 電流過載保護 | 提供 |

| | |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 電源供應 | 雙電源輸入12/24/48VDC(9.6~60VDC) 冗餘備援(可拔插式配接器) Provide DC Power JACK adapter cable for external power supply |
| 耗電量 | 4.4W (IFS-401F) 5.8W (IFS-402F) 2.9W (IFS-500) 3.9W (IFS-800) |
| 告警繼電器規格 | Relay outputs with current carrying capacity of 1 A @24VDC, NC |
| 可插拔式配接器 | 提供一個6針可拔插式配接器。內含2個備援輸入電源，一個告警繼電器 |
| 工作溫度 | -10 ~ 60°C (IFS-401F, IFS-402F, IFS-500, IFS-800) -40 ~ 75°C (IFS-401F-E, IFS-402F-E, IFS-500-E, IFS-800-E) |
| 工作濕度 | 5% to 95% (無冷凝) |
| 儲存溫度 | -40 ~ 85°C |
| 外殼 | 金屬外殼、IP30防護、無風扇 |
| 尺寸 | 106 x 38 x 142mm (D x W x H) (IFS-401F, IFS-402F) 106 x 31.6 x 142mm (D x W x H) (IFS-500, IFS-800) |
| 重量 | 0.625公斤 (IFS-401F) 0.63公斤 (IFS-402F) 0.42公斤 (IFS-500) 0.4公斤 (IFS-800) |
| 安裝方式 | Din Rail 軌道式安裝或壁掛式 |
| MTBF | 587,670小時 (IFS-401F) 509,883小時 (IFS-402F) 650,473小時 (IFS-500) 552,587小時 (IFS-800) (MIL-HDBK-217) |
| 產品保固 | 5年 |
| 認證 | |
| EMC/EMS | CE |
| EMI (Electromagnetic Interference) | FCC Part 15 Subpart B Class A, CE EN55022 Class A |
| 軌道交通 | 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 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 60068-2-27 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC 60068-2-6 |

應用圖

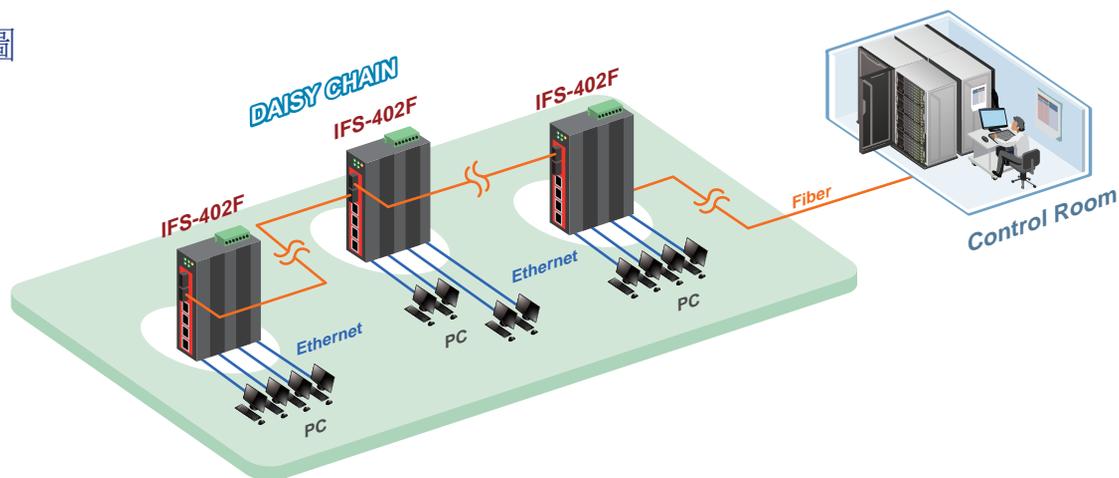


圖1：IFS-402F Fast Ethernet Switch Transmission with Daisy Chain

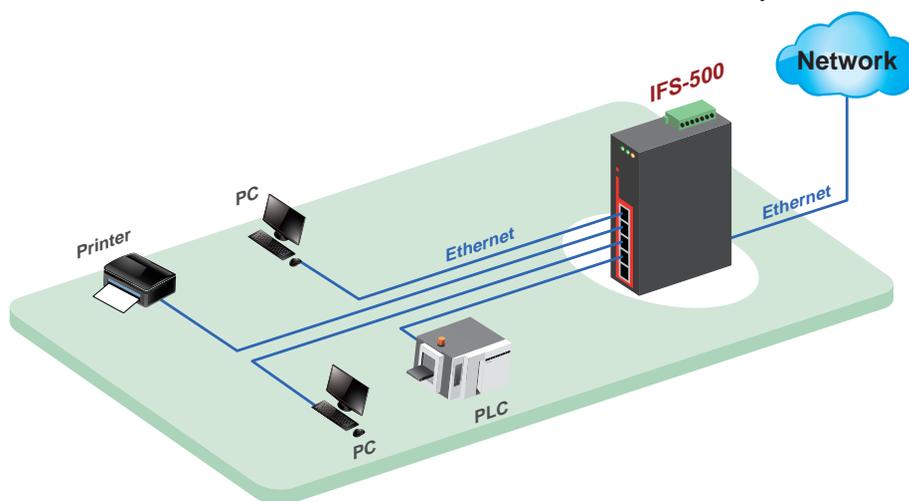
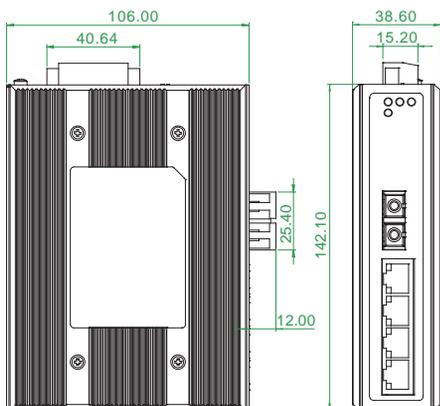


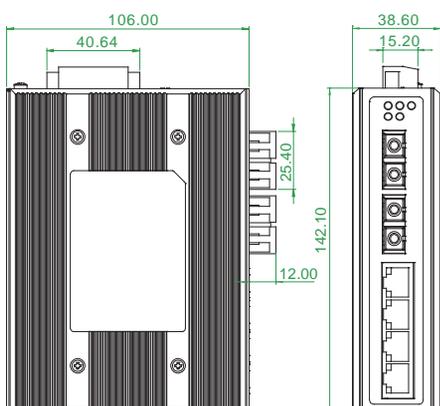
圖2：IFS-500 Fast Ethernet Switch Transmission

機構尺寸

IFS-401F

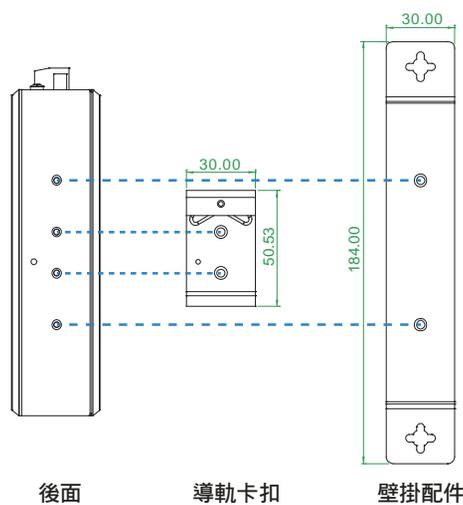


IFS-402F



側邊

前面

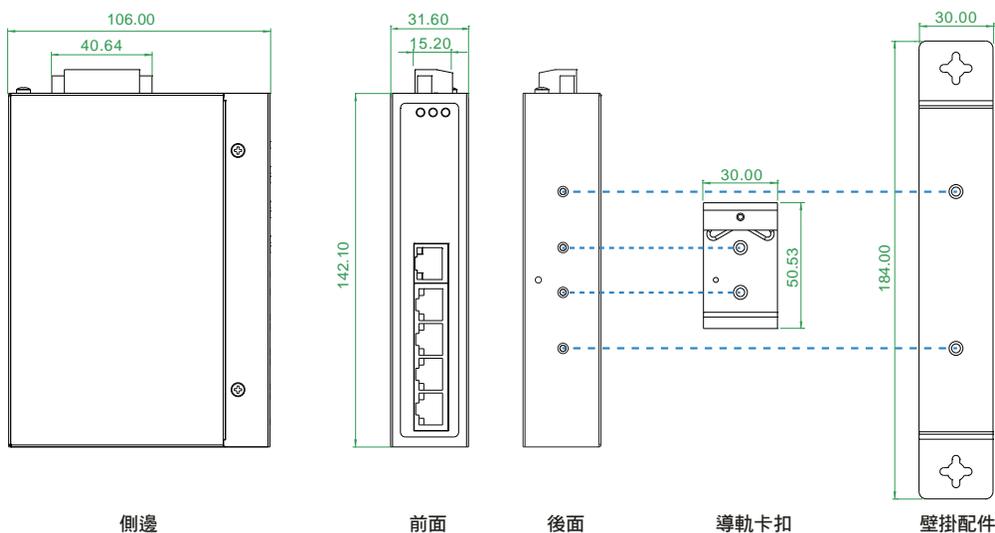


後面

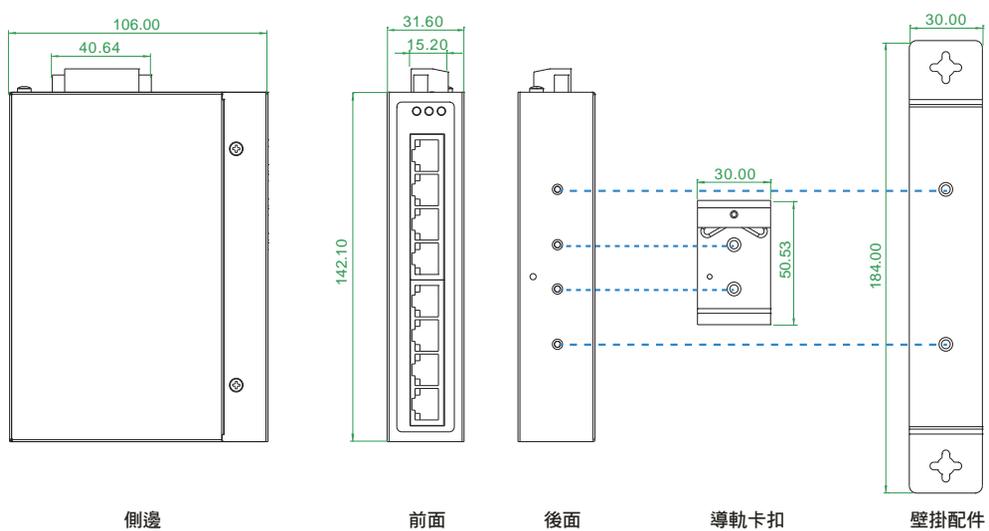
導軌卡扣

壁掛配件

IFS-500



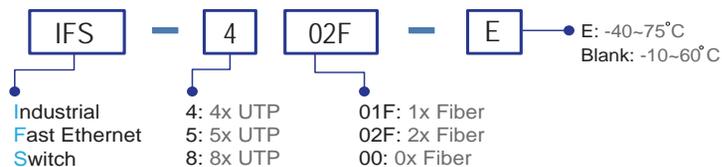
IFS-800



訂購資訊

| 型號 | 總埠數 | UTP | | 光纖 | | 認證 | | | 操作溫度 | |
|------------|-----|---------------|--|------------|--|-------------------|----------------------------|----|------|----------|
| | | 10/100Base-TX | | 100Base-FX | | 鐵道交通 EN50121-4 | EN61000-6-2 EN61000-6-4 | CE | | FCC |
| IFS-401F | 5 | 4 | | 1 SC/ST | | V | V | V | V | -10~60°C |
| IFS-401F-E | 5 | 4 | | 1 SC/ST | | V | V | V | V | -40~75°C |
| IFS-402F | 6 | 4 | | 2 SC/ST | | V | V | V | V | -10~60°C |
| IFS-402F-E | 6 | 4 | | 2 SC/ST | | V | V | V | V | -40~75°C |
| IFS-500 | 5 | 5 | | — | | V | V | V | V | -10~60°C |
| IFS-500-E | 5 | 5 | | — | | V | V | V | V | -40~75°C |
| IFS-800 | 8 | 8 | | — | | V | V | V | V | -10~60°C |
| IFS-800-E | 8 | 8 | | — | | V | V | V | V | -40~75°C |

型號命名規則



| Fiber Option Type | Connectivity Distance |
|-------------------------------|------------------------------------|
| SC, ST | 002: 2km 030: 30km 050: 50km |
| (only for IFS-401F, IFS-402F) | 020A: WDM 20km A type (TX: 1310nm) |
| | 020B: WDM 20km B type (TX: 1550nm) |

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 |

Temperature Connector Type Connectivity Distance
IFS - 401F - [] - [] [] [] []
 Example: IFS - 401F - E - SC002

NEW



IFS-500C

5x10/100Base-TX Switch

IFS-500C產品為5 ports 10/100Base-TX 非網管型高速乙太交換器，可提供穩定且可靠的傳輸功能。搭配堅固的Din Rail 軌道式或壁掛安裝外殼，此產品專為惡劣環境，如工業網路，安全自動化應用，智能交通系統（ITS），也適用於許多環境條件超出一般商規產品規格的軍事和公用事業的市場應用中。此系列產品也能達到標準工作溫度範圍（-10~60°C）及寬工作溫度範圍（-40~75°C）以滿足工業自動化特殊應用的需求。

功能特色

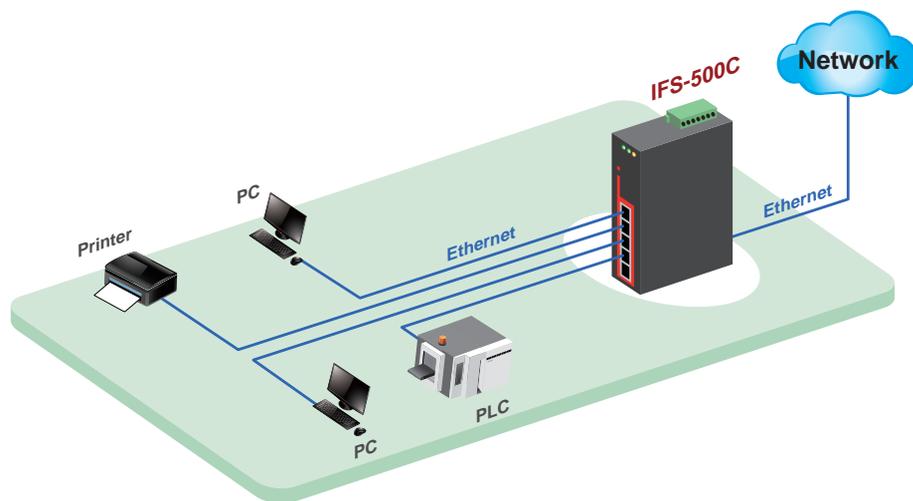
- 寬範圍電源輸入 12/24/48VDC(9.6~60VDC)，或 AC24V(18~36VAC)
- 金屬外殼、IP30 防護、無風扇
- 小巧型尺寸以利於安裝
- 寬溫工作範圍（-40 ~ 75°C）“E” 系列產品
- 提供 broadcast storm protection
- 低耗電
- 支援 flow control
- 通過 CE, FCC, 及鐵路交通 EN50121-4 認證
- 通過工業級 EMS(抗電磁干擾)，EMI (電磁波干擾)，EN61000-6-2, EN61000-6-4 認證

產品規格

| 符合標準 | IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX and 100Base-FX Fast Ethernet IEEE 802.3x Flow Control and Back Pressure | | | | | | | | |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----------|--------|------|--------|------|--------|----|
| Switch Architecture | Back-plane (Switching Fabric) : 1.0 Gbps | | | | | | | | |
| Data Processing | Store and Forward | | | | | | | | |
| 傳輸速率 | 14,880pps (乙太端口) 148,800pps (高速乙太端口) | | | | | | | | |
| Flow Control | IEEE 802.3x flow control, back pressure flow control | | | | | | | | |
| Provides Broadcast Storm Protection | 提供 | | | | | | | | |
| MAC Address Table | 1K | | | | | | | | |
| Packet Buffer Size | 448Kbits | | | | | | | | |
| 網路連接器 | 5x RJ-45 RJ-45 自動 MDI/MDI-X 功能, 10/100Base-TX Port: auto negotiation speed, 全/半雙工 | | | | | | | | |
| 網路線規格 | 10Base-T: 2-pair UTP/STP Cat. 5 cable EIA/TIA-568 100-ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5 cable EIA/TIA-568 100-ohm (100m) | | | | | | | | |
| 通訊協議 | CSMA/CD | | | | | | | | |
| LED指示燈 | 電源(綠) RJ-45 連接埠: Link/Active(綠), 速度100 (黃) | | | | | | | | |
| 電壓極性保護 | DC電源輸入防護 | | | | | | | | |
| 電流過載保護 | 提供 | | | | | | | | |
| 電源供應 | DC電源輸入12/24/48VDC(9.6~60VDC)，或AC 24V電源輸入(18~36VAC)(可拔插式配接器) | | | | | | | | |
| 耗電量 | <table border="1"> <thead> <tr> <th>輸入電壓</th> <th>耗電量(Watt)</th> </tr> </thead> <tbody> <tr> <td>DC 12V</td> <td>0.9W</td> </tr> <tr> <td>DC 24V</td> <td>1.2W</td> </tr> <tr> <td>DC 48V</td> <td>2W</td> </tr> </tbody> </table> | 輸入電壓 | 耗電量(Watt) | DC 12V | 0.9W | DC 24V | 1.2W | DC 48V | 2W |
| 輸入電壓 | 耗電量(Watt) | | | | | | | | |
| DC 12V | 0.9W | | | | | | | | |
| DC 24V | 1.2W | | | | | | | | |
| DC 48V | 2W | | | | | | | | |
| 可插拔式配接器 | 使用於輸入電源 (2 pin) | | | | | | | | |
| 工作溫度 | -10 ~ 60°C (IFS-500C) -40 ~ 75°C (IFS-500C-E) | | | | | | | | |
| 工作濕度 | 5% to 95% (無冷凝) | | | | | | | | |
| 儲存溫度 | -40 ~ 85°C | | | | | | | | |

| | |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 外殼 | 金屬外殼、IP30防護、無風扇 |
| 尺寸 | 70 x 30 x 103 mm (D x W x H) |
| 重量 | 220 公克 |
| 安裝方式 | Din Rail 軌道式安裝, 或壁掛式(選配件) |
| MTBF | 1,013,759 Hours (MIL-HDBK-217) |
| 產品保固 | 5年 |
| 認證 | |
| EMC/EMS | CE |
| EMI (Electromagnetic Interference) | FCC Part 15 Subpart B Class A, CE EN55022 Class A |
| 軌道交通 | 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 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 |
| 防撞擊 | IEC 60068-2-27 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC 60068-2-6 |

應用圖

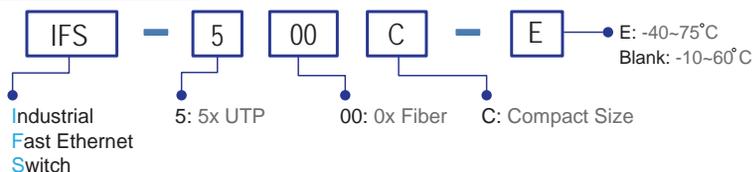


圖例：IFS-500C Fast Ethernet Switch Transmission

機構尺寸

| 型號 | 總埠數 | UTP | | 認證 | | | 操作溫度 |
|------------|-----|---------------|-------------------|----------------------------|----|-----|----------|
| | | 10/100Base-TX | 軌道交通 EN50121-4 | EN61000-6-2 EN61000-6-4 | CE | FCC | |
| IFS-500C | 5 | 5 | V | V | V | V | -10~60 C |
| IFS-500C-E | 5 | 5 | V | 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 |
| IND-WMK03 | Wall Mount kit for Industrial product (Compact, 150x 30mm) |

**IGS-404SM**

4x 10/100/1000Base-T+ 4x 100/1000Base-X SFP

IGS-803SM

8x 10/100/1000Base-T+ 3x 100/1000Base-X SFP

IGS-812SM

8x 10/100/1000Base-T+ 12x 100/1000Base-X SFP

IGS-1604SM

16x 10/100/1000Base-T+ 4x 100/1000Base-X SFP

此系列產品是工業級網管型千兆乙太網交換器，具有4~16個10/100/1000Base-T 電口和3~12個SFP千兆/百兆光口，提供穩定可靠的乙太網路傳輸。此系列交換器也支援多種管理功能，其中包括STP/ RSTP / MSTP和ITU-T G.8032及Multiple u-Ring 冗餘環網、L2 Ethernet IGMP、VLAN、QoS、Security、IPv6、bandwidth control、Port mirroring、電纜診斷和綠色節能乙太網。內建雙電源的設計，讓此系列產品可為了始終保持連線的特殊應用提供冗餘備援電源機制。此系列產品同時也能達到標準工作溫度範圍（-10~60°C）及寬工作溫度範圍（-40~75°C）以滿足工業自動化特殊應用的需求。搭配堅固的Din Rail軌道式或壁掛安裝外殼。此產品專為惡劣環境、如工業網路、安全自動化應用、交通監控及智能交通系統（ITS），也適用於許多環境條件超出一般商規產品規格的軍事和公用事業的市場應用中。此外，此系列交換器也可搭配CTC管理平台SmartView™使用，以提供網管人員更加便利、即時且集中式的網路管理。

功能特色

- 提供 4 個 10/100/1000Base-T RJ-45 電口 + 4 個 100/1000Base-X SFP 光口 (IGS-404SM)
- 提供 8 個 10/100/1000Base-T RJ-45 電口 + 3 個 100/1000Base-X SFP 光口 (IGS-803SM)
- 提供 8 個 10/100/1000Base-T RJ-45 電口 12 個 100/1000Base-X SFP 光口 (IGS-812SM)
- 提供 16 個 10/100/1000Base-T RJ-45 電口 4 個 100/1000Base-X SFP 光口 (IGS-1604SM)
- 雙電源輸入 12/24/48VDC (9.6~60VDC) 冗餘備援
- 通過 UL60950-1, CE, FCC, 鐵道交通 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
- 支援 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 (圖四), 最多可設 5 個環網 (圖二)
- u-Ring 冗餘乙太網環網, 在最多 250 個裝置時, 恢復時間 <10ms
- 支援 DHCP client/Relay/Snooping/Snooping option 82/Relay option 82
- 支援 QoS, Traffic classification QoS, CoS, bandwidth control for Ingress and Egress, Storm Control, DiffServ
- 支援 IEEE802.1q VLAN, Mac based VLAN, IP subnet based VLAN, Protocol based VLAN, VLAN translation, GVRP, MVR
- 支援動態 IEEE 802.3ad LACP Link Aggregation, Static Link Aggregation
- 支援 IGMP snooping V1/V2/V3, IGMP Filtering/Throttling, IGMP query, IGMP proxy reporting, MLD snooping V1/V2
- 安全管制功能: 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
- 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, 以利於設定大量的設備
- 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 |
| 交換架構 | Back-plane (Switching Fabric): 16Gbps (IGS-404SM) 22Gbps (IGS-803SM) 40Gbps (IGS-812SM, IGS-1604SM) | |

| Data Processing | Store and Forward | | | | | | | | | | | | | | | | | | | | |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------|------------|-----------|------------|-------|------|------|-------|-------|-------|------|------|-------|-------|-------|------|-------|-------|-------|
| Flow Control | IEEE 802.3x (全雙工), Back pressure (半雙工) | | | | | | | | | | | | | | | | | | | | |
| 網路連接器 | 4x 10/100/1000Base-T RJ-45 + 4x 100/1000Base-X SFP connector (IGS-404SM) 8x 10/100/1000Base-T RJ-45 + 3x 100/1000Base-X SFP connector (IGS-803SM) 8x 10/100/1000Base-T RJ-45+ 12x 100/1000Base-X SFP connector (IGS-812SM) 16x 10/100/1000Base-T RJ-45+ 4x 100/1000Base-X SFP connector (IGS-1604SM) RJ-45 UTP端口支援Auto negotiation功能、自動MDI/MDI-X等功能, SFP端口使用DDMI支援雙速100/1000M | | | | | | | | | | | | | | | | | | | | |
| Console | RS-232 (RJ-45) | | | | | | | | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | | | | | | | | |
| 電源供應 | 雙電源輸入12/24/48VDC (9.6~60VDC) 冗餘備援 (可拔插式配接器) | | | | | | | | | | | | | | | | | | | | |
| 耗電量 | <table border="1"> <thead> <tr> <th>輸入電壓</th> <th>IGS-404SM</th> <th>IGS-803SM</th> <th>IGS-812SM</th> <th>IGS-1604SM</th> </tr> </thead> <tbody> <tr> <td>12VDC</td> <td>8.2W</td> <td>8.5W</td> <td>14.3W</td> <td>14.5W</td> </tr> <tr> <td>24VDC</td> <td>8.1W</td> <td>9.1W</td> <td>14.2W</td> <td>14.4W</td> </tr> <tr> <td>48VDC</td> <td>9.6W</td> <td>10.6W</td> <td>15.8W</td> <td>16.3W</td> </tr> </tbody> </table> | 輸入電壓 | IGS-404SM | IGS-803SM | IGS-812SM | IGS-1604SM | 12VDC | 8.2W | 8.5W | 14.3W | 14.5W | 24VDC | 8.1W | 9.1W | 14.2W | 14.4W | 48VDC | 9.6W | 10.6W | 15.8W | 16.3W |
| 輸入電壓 | IGS-404SM | IGS-803SM | IGS-812SM | IGS-1604SM | | | | | | | | | | | | | | | | | |
| 12VDC | 8.2W | 8.5W | 14.3W | 14.5W | | | | | | | | | | | | | | | | | |
| 24VDC | 8.1W | 9.1W | 14.2W | 14.4W | | | | | | | | | | | | | | | | | |
| 48VDC | 9.6W | 10.6W | 15.8W | 16.3W | | | | | | | | | | | | | | | | | |

| | |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| LED指示燈 | Power 1 (綠), Power 2 (綠), Fault (琥珀色) CPU Act(綠) Ring Master (黃) RJ-45 連接埠 :10/100 Link/Active(綠) 1000 Link/Active(琥珀色) SFP光端口 Link/Active(綠) |
| Jumbo Frame | 9.6KB |
| MAC Address Table | 8K |
| Memory Buffer | 256K Bytes for packet buffer |
| 告警訊息 | System Syslog, SMTP/ e-mail event message, alarm relay |
| 告警繼電器規格 | Relay outputs with current carrying capacity of 1 A @24VDC |
| 可插拔式配接器 | Provide 2 redundant power, alarm relay contact, 6 Pin |
| 工作溫度 | -10 ~ 60°C (IGS-404SM, IGS-803SM, IGS-812SM, IGS-1604SM) -40 ~ 75°C (IGS-404SM-E, IGS-803SM-E, IGS-812SM-E, IGS-1604SM-E) |
| 工作濕度 | 5% to 95% (無冷凝) |
| 儲存溫度 | -40 ~ 85°C |
| 外殼 | 金屬外殼, IP30防護, 無風扇 |
| 尺寸 | 106 x 62.5 x 135 mm (D x W x H) (IGS-404SM) 106 x 72 x 152 mm (D x W x H) (IGS-803SM, IGS-812SM, IGS-1604SM) |
| 重量 | 0.725公斤 (IGS-404SM) 0.78公斤 (IGS-803SM) 0.795公斤 (IGS-812SM) 0.82公斤 (IGS-1604SM) |
| 安裝方式 | Din Rail 軌道式安裝或壁掛式 |

軟體規格

| | |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 拓撲 | |
| 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 | 提供 |
| ITU-T G.8032 / Y.1344 ERPS (乙太網環保護) | 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 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 單位 : bit or frame |
| Bandwidth Control for Egress | Rate in steps : 1 kbps / Mbps Range : 100 kbps to 1Gbps 單位 : 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, Fast Leave Maximum Multicast Group : up to 1022 entries Query / Static Router Port |

| | |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MTBF | 302,826小時 (IGS-404SM) 404,589小時 (IGS-803SM) 204,078小時 (IGS-812SM) 145,967小時 (IGS-1604SM) (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 | 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 |
| 防撞擊 | IEC 60068-2-27 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC 60068-2-6 |

| | |
|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 安全性 | |
| 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 (透過 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 | RFC1213 MIB II, Private MIB |
| 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
 Cable Diagnostic 偵測網路線的故障點距離

應用圖

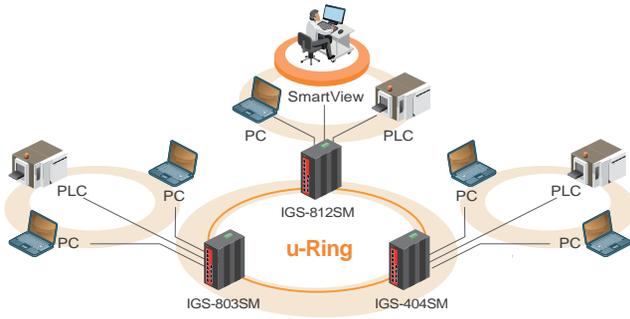


圖1：(應用案例)

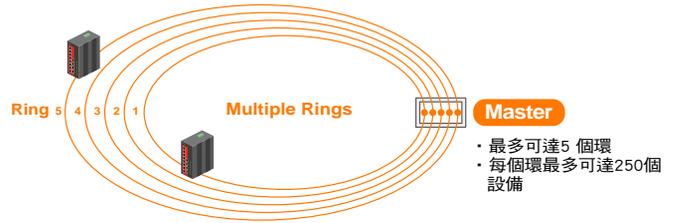


圖2：Multiple Rings

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 Type

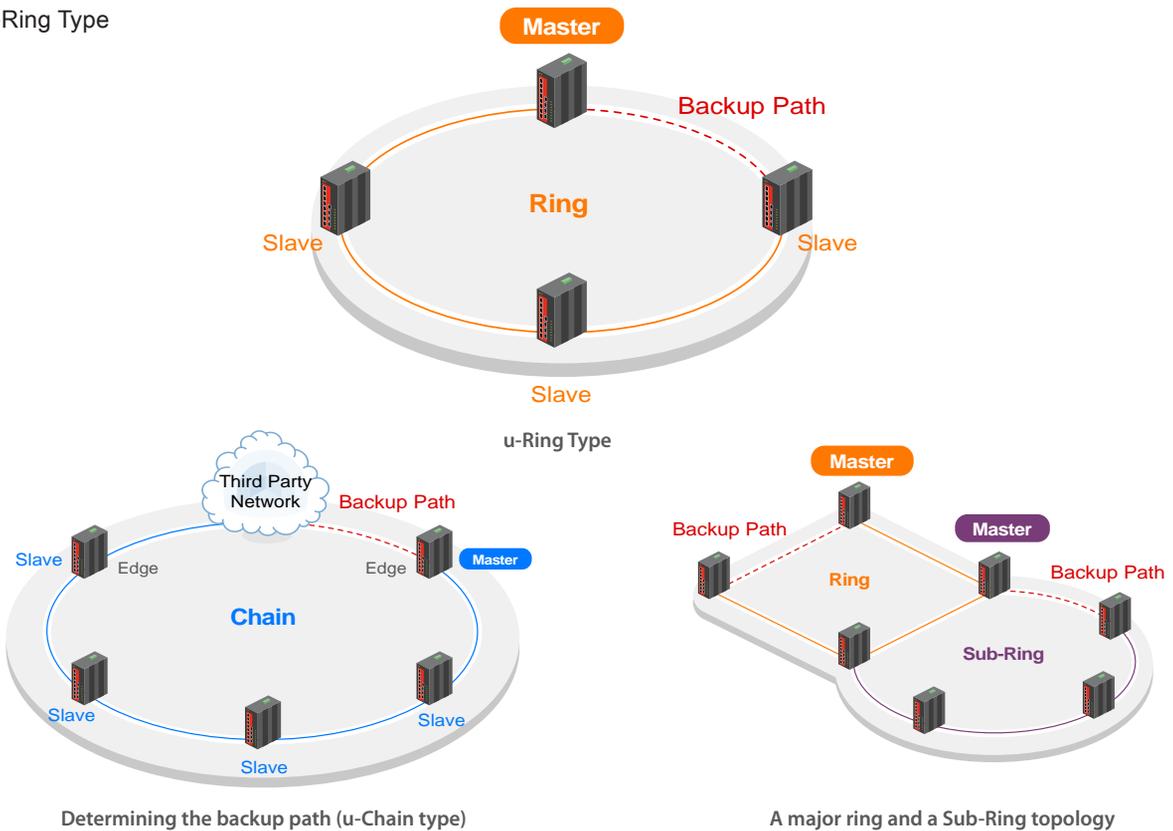
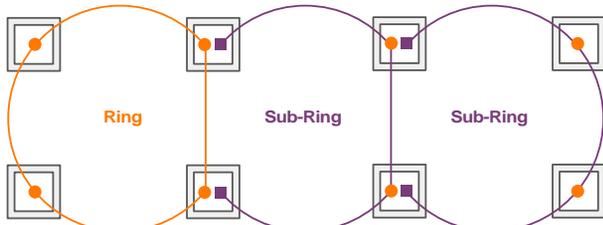
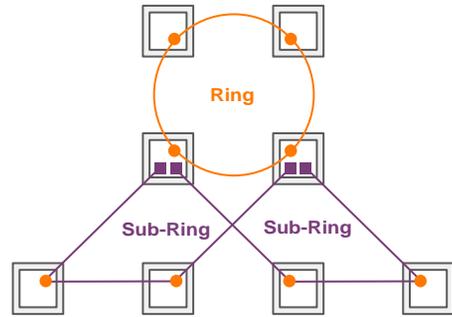


圖5：(Ring 配置範例)

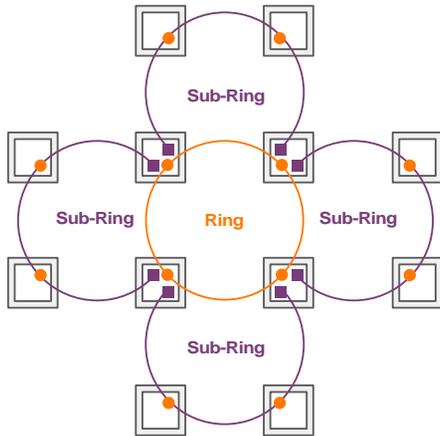
● u-Ring
 ■ Sub-Ring



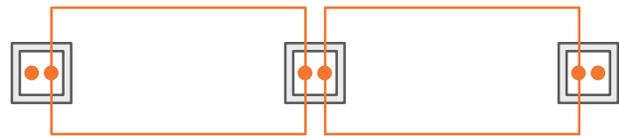
Ring Configuration Type



Combination of a ring and two Sub-Ring



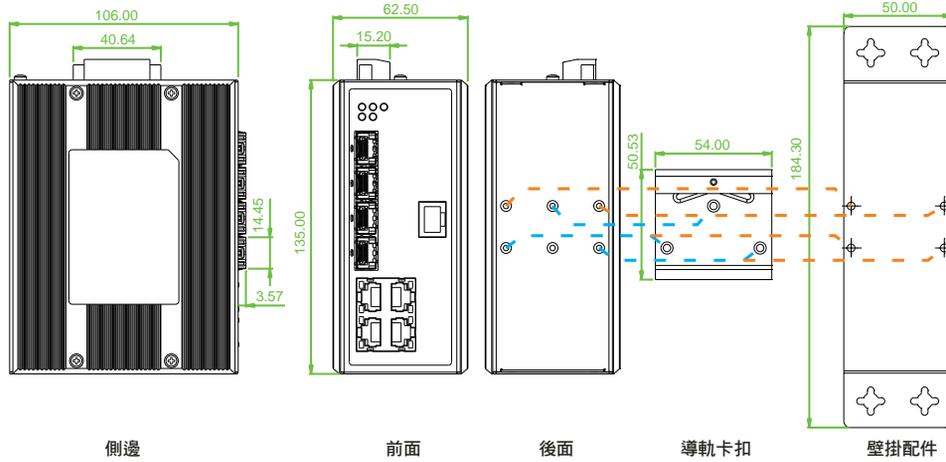
Combination of a ring and four Sub-Ring



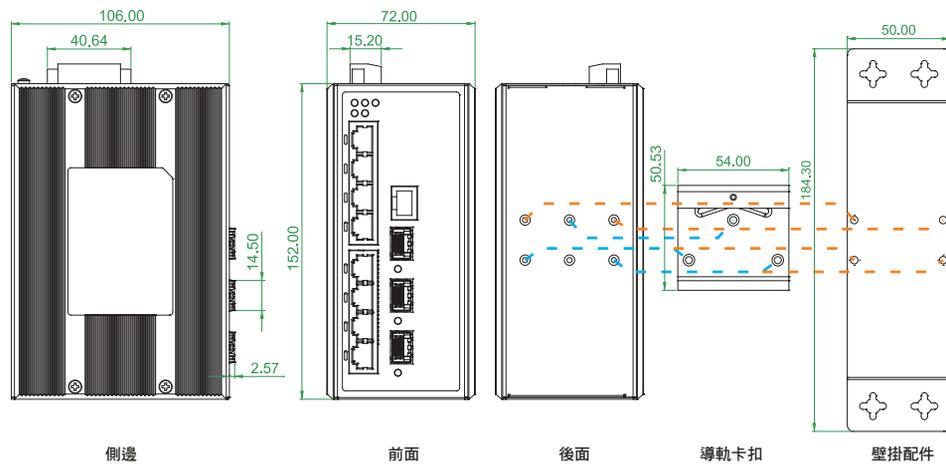
Cable Redundancy

機構尺寸

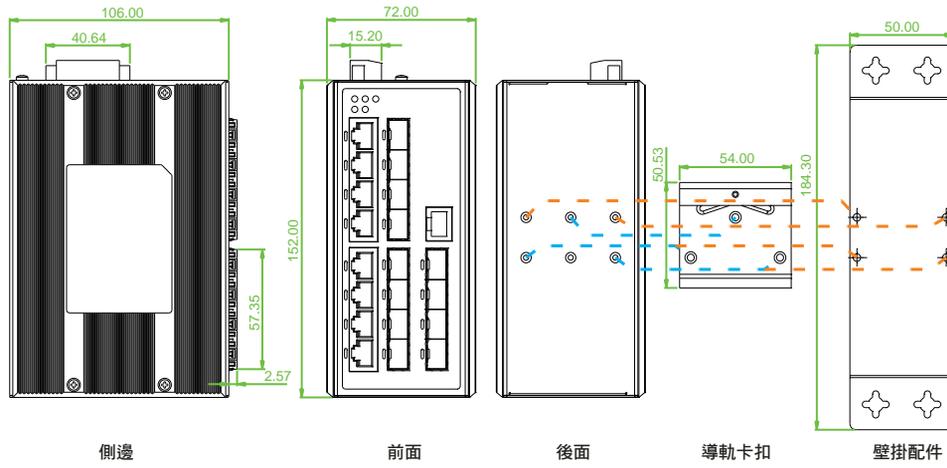
IGS-404SM



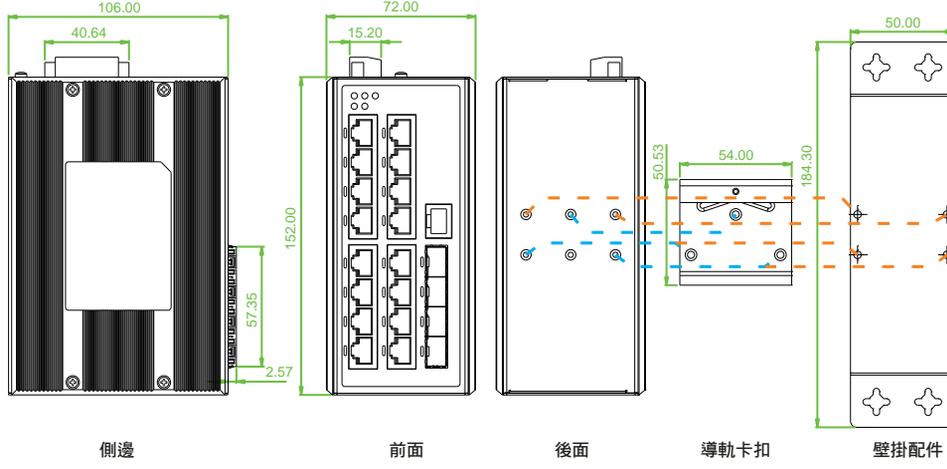
IGS-803SM



IGS-812SM



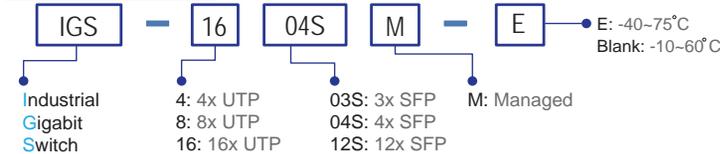
IGS-1604SM



訂購資訊

| 型號 | 管理 | 總埠數 | UTP | 光纖 | 認證 | | | 操作溫度 | |
|--------------|----|-----|--------------------|-----------------|----------------|--------------|-------------------------|------|----------|
| | | | 10/100/1000 Base-T | 100/1000 Base-X | 鐵道交通 EN50121-4 | 安全 UL60950-1 | EN61000-6-2 EN61000-6-4 | | CE FCC |
| IGS-404SM | V | 8 | 4 | 4 SFP | V | V | V | V | -10~60°C |
| IGS-404SM-E | V | 8 | 4 | 4 SFP | V | V | V | V | -40~75°C |
| IGS-803SM | V | 11 | 8 | 3 SFP | V | V | V | V | -10~60°C |
| IGS-803SM-E | V | 11 | 8 | 3 SFP | V | V | V | V | -40~75°C |
| IGS-812SM | V | 20 | 8 | 12 SFP | V | V | V | V | -10~60°C |
| IGS-812SM-E | V | 20 | 8 | 12 SFP | V | V | V | V | -40~75°C |
| IGS-1604SM | V | 20 | 16 | 4 SFP | V | V | V | V | -10~60°C |
| IGS-1604SM-E | V | 20 | 16 | 4 SFP | V | V | V | V | -40~75°C |

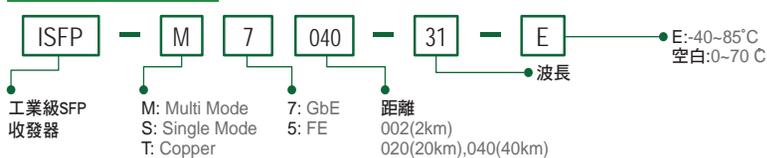
型號命名規則



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





IFS-402GSM

4x 10/100Base-TX+ 2x 100/1000Base-X SFP

IFS-803GSM

8x 10/100Base-TX+ 3x 100/1000Base-X SFP

IFS-1604GSM

16x 10/100Base-TX+ 4x 100/1000Base-X SFP

此系列產品是工業級網管型百兆乙太網交換器，具有4~16個10/100Base-TX電口和2~4個SFP千兆/百兆光口，提供穩定可靠的乙太網路傳輸。此系列交換器也支援多種管理功能，其中包括STP/ RSTP / MSTP和ITU-T G.8032及Multiple u-Ring 冗餘環網、L2 Ethernet IGMP、VLAN、QoS、Security、IPv6、bandwidth control、Port mirroring、電纜診斷和綠色節能乙太網。內建雙電源的設計，讓此系列產品可為了始終保持連線的特殊應用提供冗餘備援電源機制。此系列產品同時也能達到標準工作溫度範圍（-10~60°C）及寬工作溫度範圍（-40~75°C）以滿足工業自動化特殊應用的需求。搭配堅固的Din Rail軌道式或壁掛安裝外殼。此產品專為惡劣環境、如工業網路、安全自動化應用、交通監控及智能交通系統（ITS），也適用於許多環境條件超出一般商規產品規格的軍事和公用事業的市場應用中。此外，此系列交換器也可搭配CTC管理平台SmartView™使用，以提供網管人員更加便利、即時且集中式的網路管理。

功能特色

- 提供 4 個 10/100Base-TX RJ-45 電口 + 2 個 100/1000Base-X SFP 光口 (IFS-402GSM)
- 提供 8 個 10/100Base-TX RJ-45 電口 + 3 個 100/1000Base-X SFP 光口 (IFS-803GSM)
- 提供 16 個 10/100Base-TX RJ-45 電口 + 4 個 100/1000Base-X SFP 光口 (IFS-1604GSM)
- 雙電源輸入 12/24/48VDC (9.6~60VDC) 冗餘備援
- 通過 UL60950-1, CE, FCC, 鐵道交通 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
- 支援 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 (圖四), 最多可設 5 個環網 (圖二)
- u-Ring 冗餘乙太網環網, 在最多 250 個裝置時, 恢復時間 <10ms
- 支援 DHCP client/Relay/Snooping/Snooping option 82/Relay option 82
- 支援 QoS, Traffic classification QoS, CoS, bandwidth control for Ingress and Egress, Storm Control, DiffServ
- 支援 IEEE802.1q VLAN, Mac based VLAN, IP subnet based VLAN, Protocol based VLAN, VLAN translation, GVRP, MVR
- 支援動態 IEEE 802.3ad LACP Link Aggregation, Static Link Aggregation
- 支援 IGMP snooping V1/V2/V3, IGMP Filtering/Throttling, IGMP query, IGMP proxy reporting, MLD snooping V1/V2
- 安全管制功能: 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
- 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, 以利於設定大量的設備
- 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 802.3z 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 |
| 交換架構 | Back-plane (Switching Fabric): 4.8Gbps (IFS-402GSM) 7.6Gbps (IFS-803GSM) 11.2Gbps (IFS-1604GSM) |
| Data Processing | Store and Forward |

| Flow Control | IEEE 802.3x (全雙工), Back pressure (半雙工) | | | | | | | | | | | | | | | | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------|------------|-------------|-------|------|------|-------|-------|------|----|-------|-------|------|------|-------|
| 網路連接器 | 4x 10/100Base-TX RJ-45 and 2x 100/1000Base-X SFP Fiber connector (IFS-402GSM) 8x 10/100Base-TX RJ-45 and 3x 100/1000Base-X SFP Fiber connector (IFS-803GSM) 16x 10/100Base-TX RJ-45 and 4x 100/1000Base-X SFP Fiber connector (IFS-1604GSM) RJ-45 UTP端口支援Auto negotiation功能、自動MDI/MDI-X等功能, SFP端口使用DDMI支援雙速100/1000M | | | | | | | | | | | | | | | | |
| Console | RS-232 (RJ-45) | | | | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | | | | |
| 電源供應 | 雙電源輸入12/24/48VDC (9.6~60VDC) 冗餘備援 (可拔插式配接器) | | | | | | | | | | | | | | | | |
| 耗電量 | <table border="1"> <thead> <tr> <th>輸入電壓</th> <th>IFS-402GSM</th> <th>IFS-803GSM</th> <th>IFS-1604GSM</th> </tr> </thead> <tbody> <tr> <td>12VDC</td> <td>5.7W</td> <td>6.5W</td> <td>10.8W</td> </tr> <tr> <td>24VDC</td> <td>5.8W</td> <td>7W</td> <td>10.6W</td> </tr> <tr> <td>48VDC</td> <td>8.5W</td> <td>8.6W</td> <td>12.5W</td> </tr> </tbody> </table> | 輸入電壓 | IFS-402GSM | IFS-803GSM | IFS-1604GSM | 12VDC | 5.7W | 6.5W | 10.8W | 24VDC | 5.8W | 7W | 10.6W | 48VDC | 8.5W | 8.6W | 12.5W |
| 輸入電壓 | IFS-402GSM | IFS-803GSM | IFS-1604GSM | | | | | | | | | | | | | | |
| 12VDC | 5.7W | 6.5W | 10.8W | | | | | | | | | | | | | | |
| 24VDC | 5.8W | 7W | 10.6W | | | | | | | | | | | | | | |
| 48VDC | 8.5W | 8.6W | 12.5W | | | | | | | | | | | | | | |
| LED指示燈 | Power 1 (綠), Power 2 (綠), Fault (琥珀色) CPU Act(綠) Ring Master (黃) RJ-45 連接埠 :10/100 Link/Active(綠) SFP光端口 Link/Active(綠) | | | | | | | | | | | | | | | | |

| | |
|-------------------|------------------------------------------------------------------------------------------------------------|
| Jumbo Frame | 9.6KB |
| MAC Address Table | 8K |
| Memory Buffer | 256K Bytes for packet buffer |
| 告警訊息 | System Syslog, SMTP/ e-mail event message, alarm relay |
| 告警繼電器規格 | Relay outputs with current carrying capacity of 1 A @24VDC |
| 可插拔式配接器 | Provide 2 redundant power, alarm relay contact, 6 Pin |
| 工作溫度 | -10 ~ 60°C (IFS-402GSM, IFS-803GSM, IFS-1604GSM) -40 ~ 75°C (IFS-402GSM-E, IFS-803GSM-E, IFS-1604GSM-E) |
| 工作濕度 | 5% to 95% (無冷凝) |
| 儲存溫度 | -40 ~ 85°C |
| 外殼 | 金屬外殼, IP30防護、無風扇 |
| 尺寸 | 106 x 62.5 x 135 mm (D x W x H) (IFS-402GSM) 106 x 72 x 152 mm (D x W x H) (IFS-803GSM, IFS-1604GSM) |
| 重量 | 0.715公斤(IFS-402GSM) 0.79公斤(IFS-803GSM) 0.82公斤(IFS-1604GSM) |
| 安裝方式 | Din Rail 軌道式安裝或壁掛式 |
| MTBF | 321,556Hrs (IFS-402GSM) 409,312Hrs (IFS-803GSM) 145,967Hrs (IFS-1604GSM) |

軟體規格

| | |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 拓撲 | |
| 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 | 提供 |
| ITU-T G.8032 / Y.1344 ERPS (乙太網環保護) | 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 單位 : bit or frame |
| Bandwidth Control for Egress | Rate in steps : 1 kbps / Mbps Range : 100 kbps to 1Gbps 單位 : 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, Fast Leave Maximum Multicast Group : up to 1022 entries Query / Static Router Port |
| 安全性 | |
| IEEE 802.1X | Port-Based MAC-Based |

| | |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 | 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 |
| 防撞擊 | IEC 60068-2-27 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC 60068-2-6 |
| Management 特色 | |
| 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 (透過 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 | RFC1213 MIB II, Private MIB |
| 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
 Cable Diagnostic 偵測網路線的故障點距離

應用圖

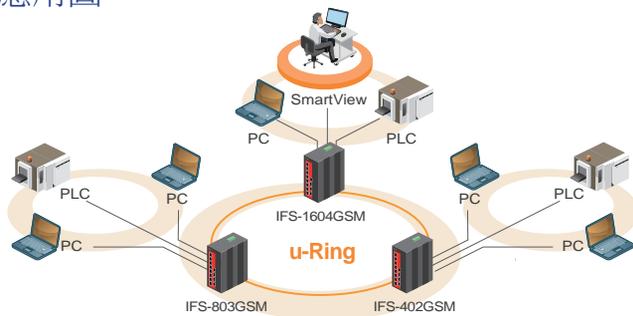


圖1：(應用案例)

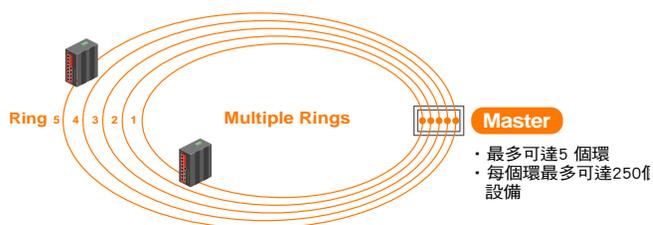


圖2：Multiple Rings

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 Type

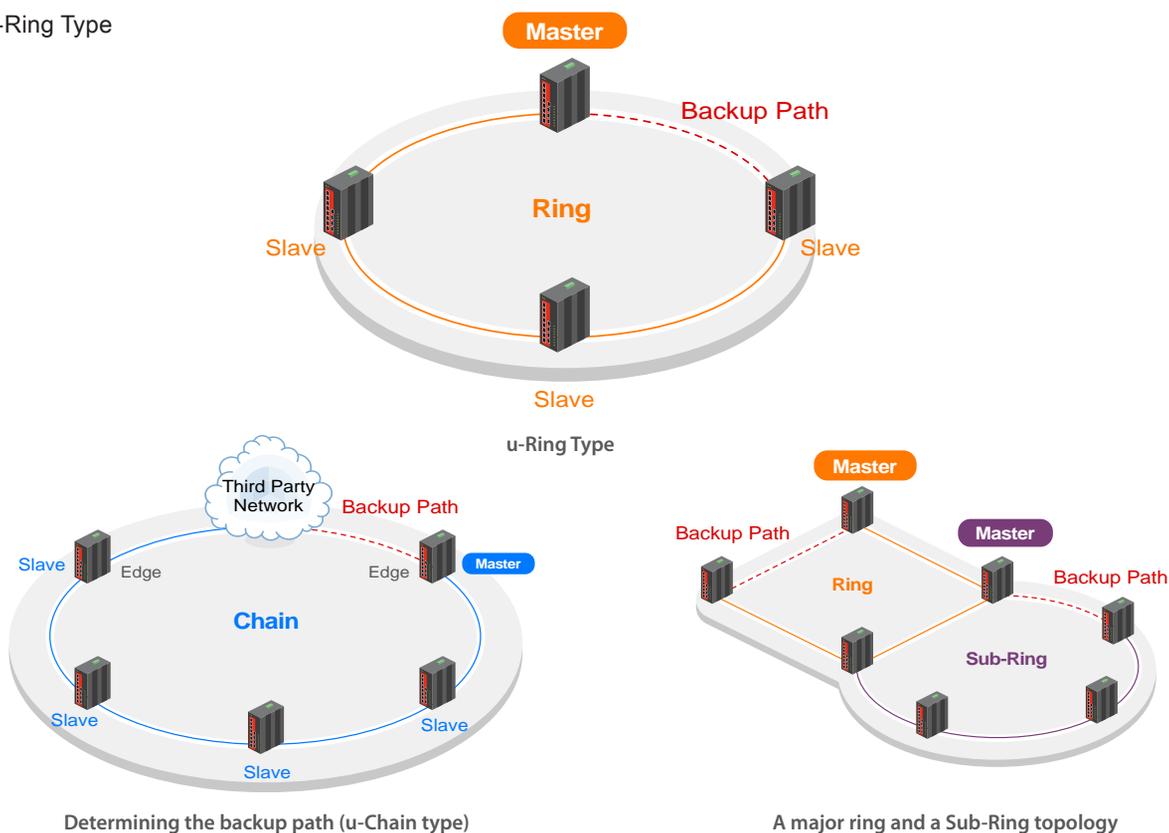
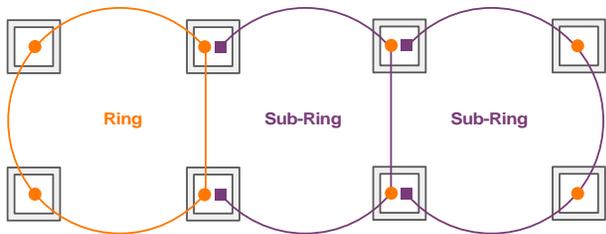
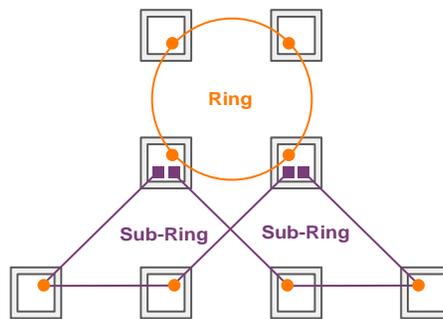


圖5：(Ring 配置範例)

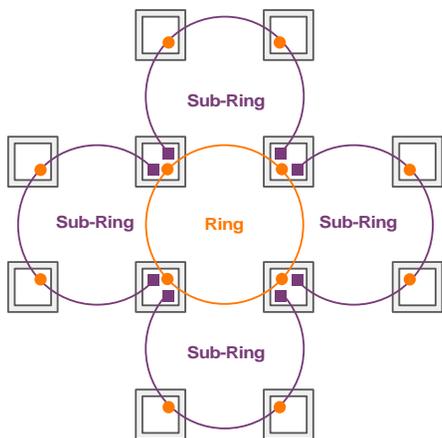
● u-Ring
■ Sub-Ring



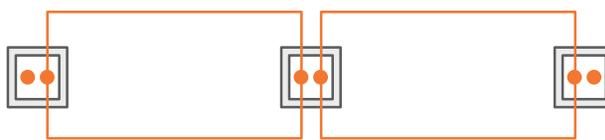
Ring Configuration Type



Combination of a ring and two Sub-Ring



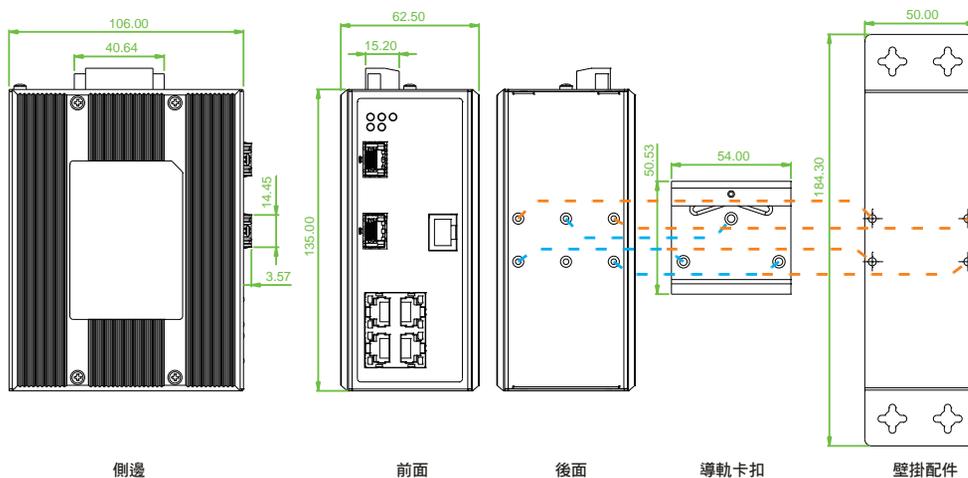
Combination of a ring and four Sub-Ring



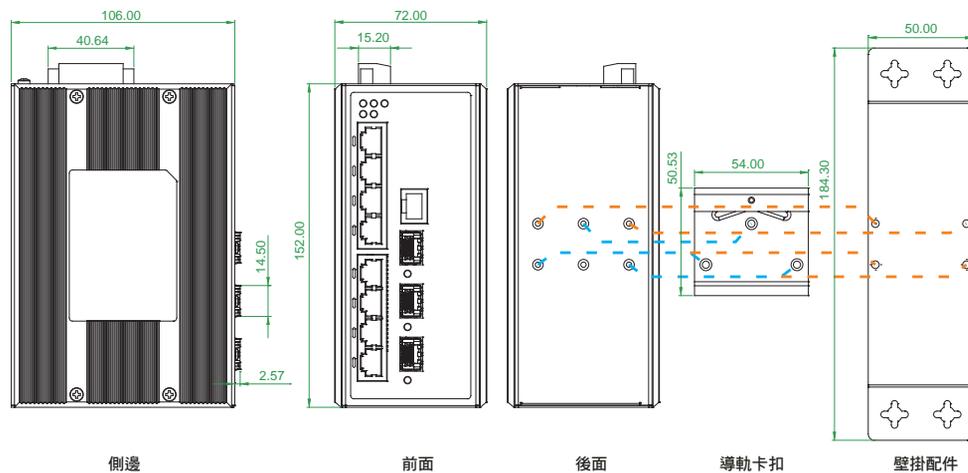
Cable Redundancy

機構尺寸

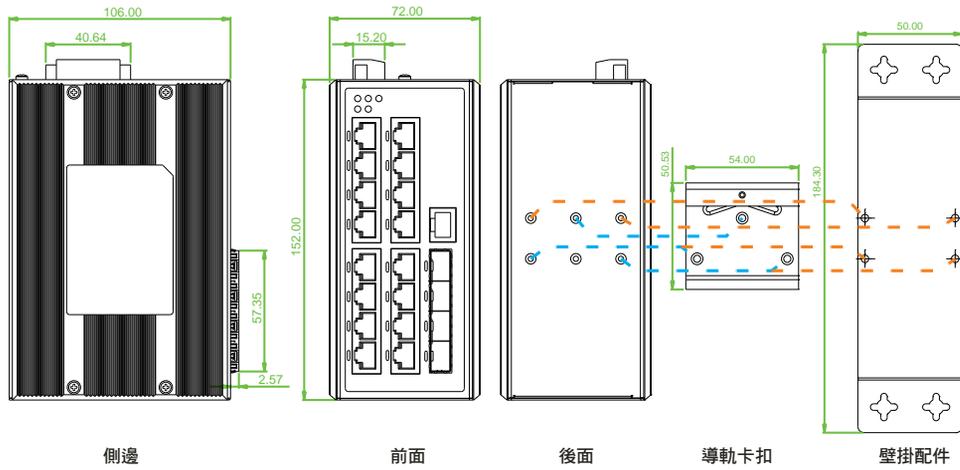
IFS-402GSM



IFS-803GSM



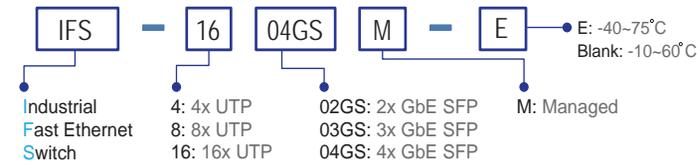
IFS-1604GSM



機構尺寸

| 型號 | 管理 | 總埠數 | UTP | | 光纖 | | 認證 | | | 操作溫度 |
|---------------|----|-----|----------------|-----------------|-----------------|----------------|--------------|----------------------------|-----------|----------|
| | | | 10/100 Base-TX | 100/1000 Base-X | 100/1000 Base-X | 鐵道交通 EN50121-4 | 安全 UL60950-1 | EN61000-6-2 EN61000-6-4 | CE FCC | |
| IFS-402GSM | V | 6 | 4 | 2 SFP | V | V | V | V | V | -10~60°C |
| IFS-402GSM-E | V | 6 | 4 | 2 SFP | V | V | V | V | V | -40~75°C |
| IFS-803GSM | V | 11 | 8 | 3 SFP | V | V | V | V | V | -10~60°C |
| IFS-803GSM-E | V | 11 | 8 | 3 SFP | V | V | V | V | V | -40~75°C |
| IFS-1604GSM | V | 20 | 16 | 4 SFP | V | V | V | V | V | -10~60°C |
| IFS-1604GSM-E | V | 20 | 16 | 4 SFP | V | V | V | V | V | -40~75°C |

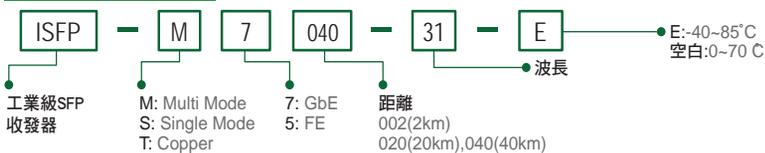
型號命名規則



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





EN61000-6-2
EN61000-6-4

IFC-FDC

RS-232/422/485 Daisy Chain Fiber Converter

IFC-Serial

RS-232/422/485 Fiber Converter

此系列產品為工業級串列/光纖介面轉換器，可以 1 或 2 個光纖纜線延伸異步串列端口RS-232/485/422信號的傳輸距離。光纖距離可延伸達2km (多模光纖)、30km 或 60km (單模光纖)。串列端口可選擇設定的模式為RS232、RS485 (2 半雙工) 或 RS485/422 (4線, 全雙工)。此系列產品中的 IFC-FDC 具備雙光口，除了可延伸距離之外還可做為"Daisy Chain" 或 "Ring" 等光纖纜冗餘備援方式，支援多台設備組成菊鏈或環狀拓撲 (冗餘保護)。此產品的接線配接器提供了告警繼電器及兩個冗餘備援雙電源輸入。工作溫度達到-10~60°C (標準型)或-40~75°C (寬溫型)。各種特殊設計使此系列產品在嚴苛的工業自動化環境下也能穩定且可靠的持續運作。

功能特色

- 支援 2 Fiber link (IFC-FDC)
- 支援 1 Fiber link (IFC-Serial)
- 支援 dual channel communication, including Triple-Way communication, and Two-Way communication (參見圖 1, 圖 5)
- 雙電源輸入 12/24/48VDC (9.6~58VDC) 冗餘備援
- 延展傳輸距離可達到 2 公里，三十公里或六十公里
- 支援多種拓撲 cable redundancy(圖 2), ring connections (圖 3), fiber daisy chain (圖 4), point to point (IFC-FDC)
- 支援 half-duplex ring application(圖 6), point to point (圖 7) (IFC-Serial)
- 支援 RS-232, RS-422, RS-485(2/4 wire) 對光纖連接
- 先進的 serial baud rate 高達 1024kbps
- 串口訊號隔離電壓 2.5KV
- 支援電源或連線失敗的告警繼電輸出
- 堅固的外殼，IP30 防護
- 無風扇及專為嚴苛的自動化環境下設計的 Din Rail 式軌道
- 可調式 pull high/low 電阻 and terminator for RS-422/485 transmission

產品規格

| | | | |
|----------------------|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Data Flow | Dual Channel Communication | Both of Triple-Way and Two-Way Communication Way (圖1, 圖5) | |
| 光纖界面 | 連接器 | SC, ST | |
| | Fiber 端口 | 2 fiber ports (IFC-FDC) 1 fiber port (IFC-Serial) | |
| | Fiber 類型 | MM 2km, SM 30km/60km | |
| | 波長 | MM 1310nm, SM 1310, 1550nm | |
| | 點對點傳輸 | 半/全雙工 | |
| 光纖拓撲 | 環狀傳輸 | 半/全雙工, 自動修復功能 | |
| | Cable redundancy(圖 2), ring connections (圖 3), fiber daisy chain (圖 4), point to point (IFC-FDC) | | |
| Electrical Interface | Half-duplex ring application(圖 7), point to point(圖 6) (IFC-Serial) | | |
| | Serial Port Connector | RS-232(DB9), RS-422/RS-485(5 pin 腳接線端) RS-485 : 4, 2 wires, RS-422 : 4 wires | |
| | RS-485 direction | 自動偵測 | |
| | Copper Baud rate | 50 以上至 1024Kbps | |
| | Serial Isolation | 2.5KV for serial signals | |
| | ESD 防護 | 8KV ESD for serial signals | |
| | Pull high 電阻 | Selected by 10 position rotary switch | |
| | Pull low 電阻 | Selected by 10 position rotary switch | |
| | 120 ohm terminator | Built-in 120 ohm terminator (Option by Dip Switch) | |
| | 環境溫度 | 工作溫度 | -10 ~ 60°C (IFC-FDC, IFC-Serial) -40 ~ 75°C (IFC-FDC-E, IFC-Serial-E) |
| | | 儲存溫度 | -40 ~ 85°C |
| 濕度 | | 5 ~ 95% RH | |
| LED指示燈 | PWR1, PWR2, Alarm, Master, TD, RD, Fiber Link, Fiber2 Link (IFC-FDC only), Ring | | |

| | | | | |
|------------|------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------|-------------------------|
| 電源 | 電源輸入 | 冗餘雙電源輸入, 12/24/48VDC(9.6~58VDC) | | |
| | 耗電量 | 6W (IFC-FDC) 5W (IFC-Serial) | | |
| | 輸入電源反向保護 | 提供 | | |
| Mechanical | 過電流保護 | Signal Short Together Protected | | |
| | Terminal Block for Power and Alarm | Terminal Block : V1+, V1-, V2+, V2-, Alarm NC, Alarm COM, Alarm NO | | |
| | 防水防塵保護 | IP30防護, 無風扇 | | |
| | 尺寸 | 106 x 38.6 x 142.1mm (D x W x H) | | |
| 認證 | 安裝方式 | Din Rail 軌道式安裝或壁掛式 | | |
| | 重量 | 0.64kg (IFC-FDC) 0.63kg (IFC-Serial) | | |
| | Safety | UL60950-1 | | |
| | EMC | CE, FCC | | |
| | EMI | | EN55022 Class A | |
| | | | EN61000-6-4 – Emission for heavy industrial environment | |
| | | | EN61000-6-2 – Immunity for heavy industrial environment | |
| | | | EN61000-4-2 ESD Level 3 | |
| | | EMS | | EN61000-4-3 RS Level 3 |
| | | | | EN61000-4-4 EFT Level 3 |
| | | | EN61000-4-5 Surge Level 3 | |
| 防摔 | | EN61000-4-6 CS Level 3 | | |
| | 防摔 | IEC 60068-2-32 | | |
| | 防震 | IEC 60068-2-6 | | |
| | 防撞擊 | IEC 60068-2-27 | | |
| Green | | RoHS | | |
| | MTBF | 687,418 小時 (IFC-FDC) 797,101 小時 (IFC-Serial) (MIL-HDBK-217) | | |

IFC-FDC 應用圖

圖1 : Dual Channel Data Flow

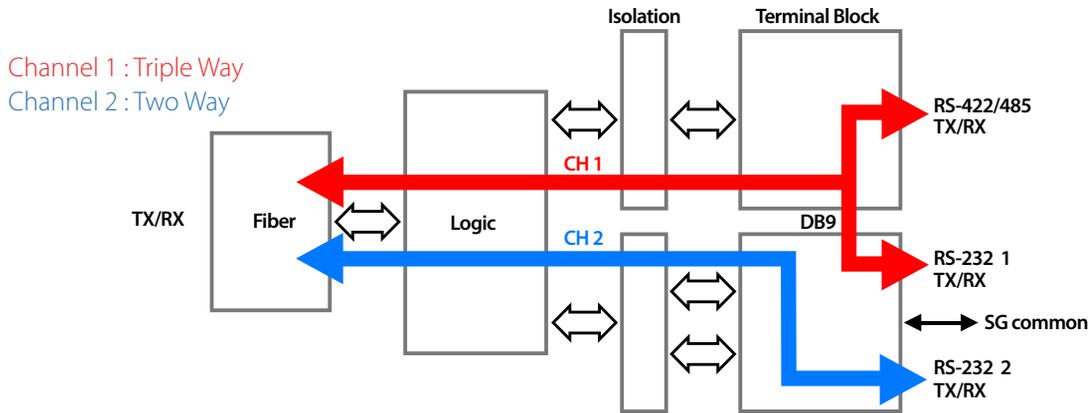


圖2 : Dual Fiber for Cable Redundancy

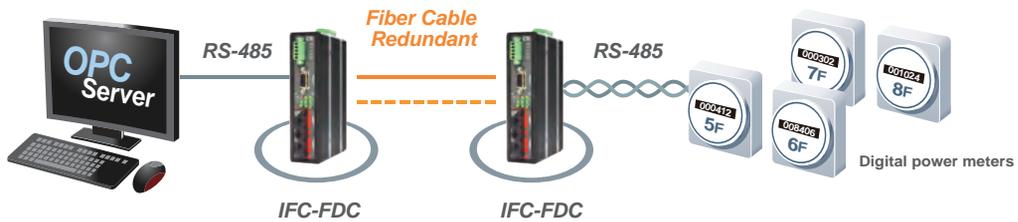


圖3 : Fiber Ring for Cable Redundancy

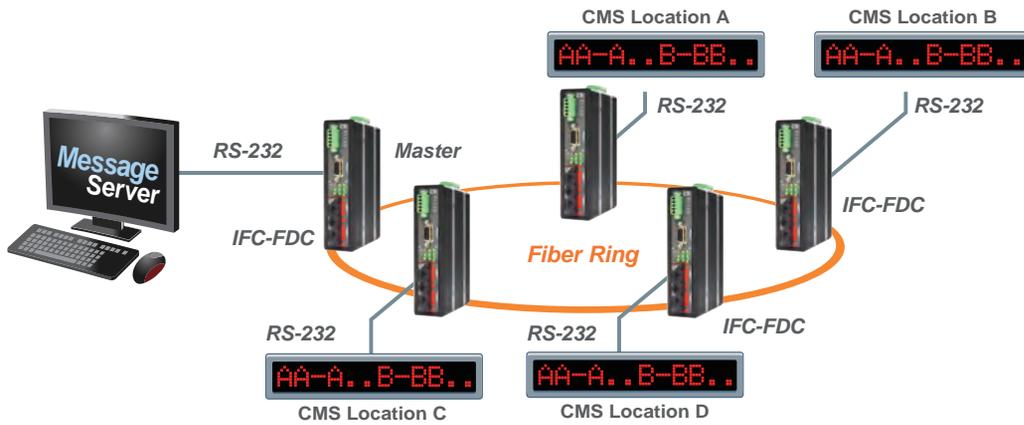
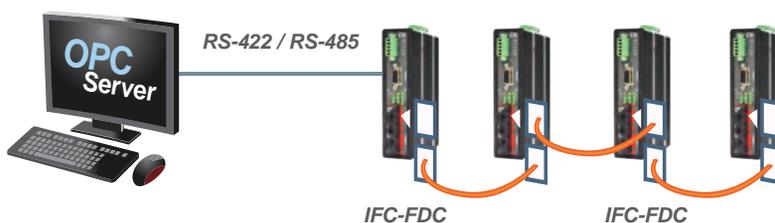
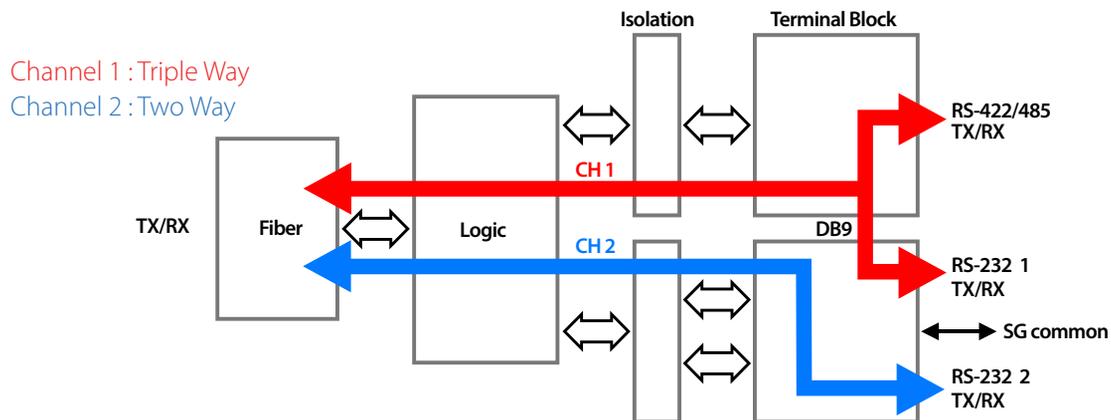


圖4 : Dual Fiber for Daisy Chain



IFC-Serial 應用圖

圖5：Dual Channel Data Flow



6 Industrial Serial Fiber Converters

圖6：Point to Point

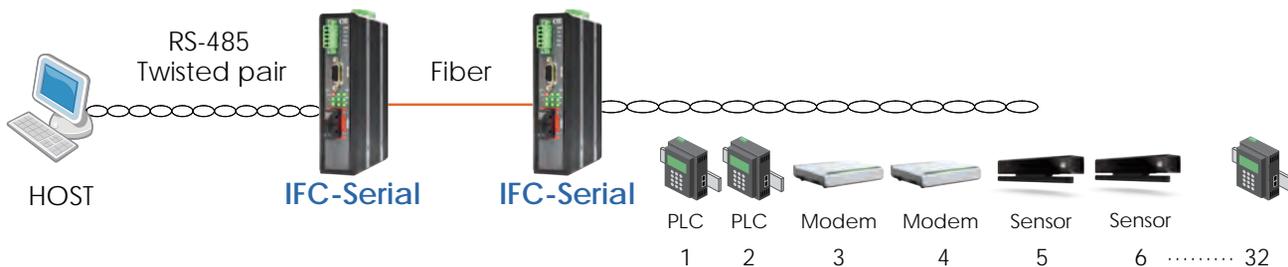
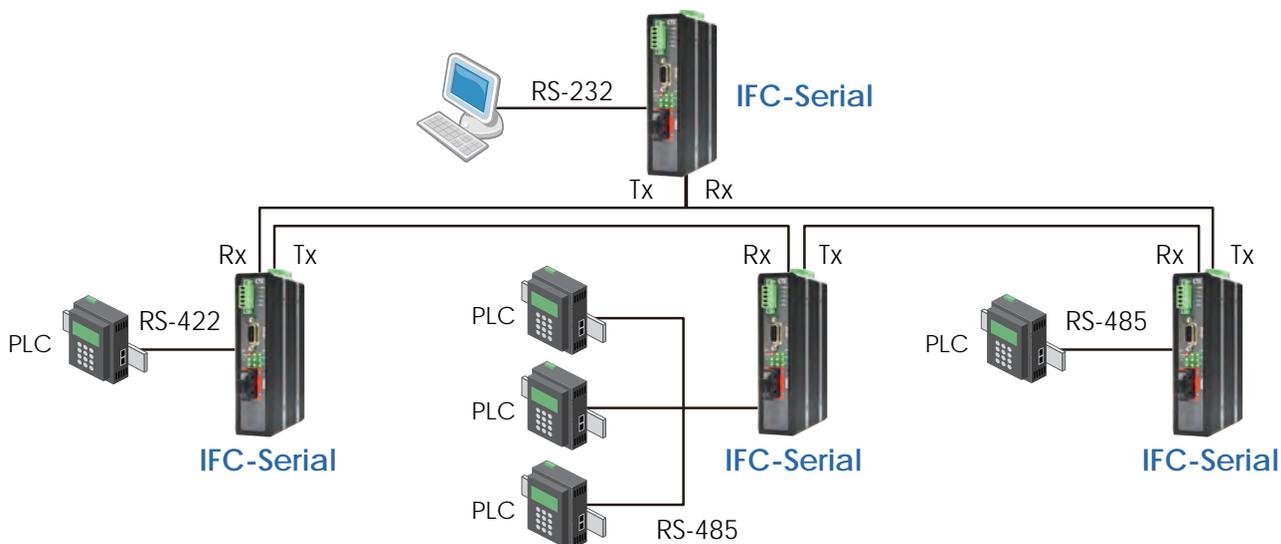
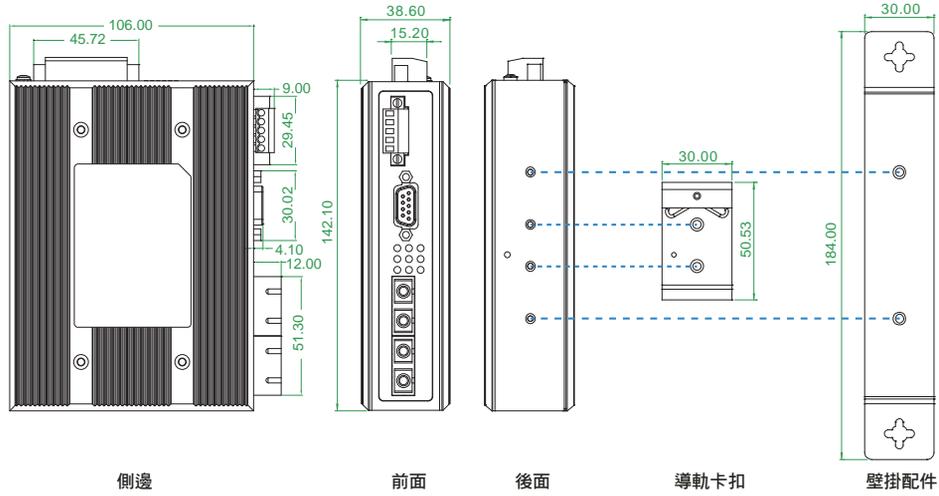


圖7：Ring (Half duplex)

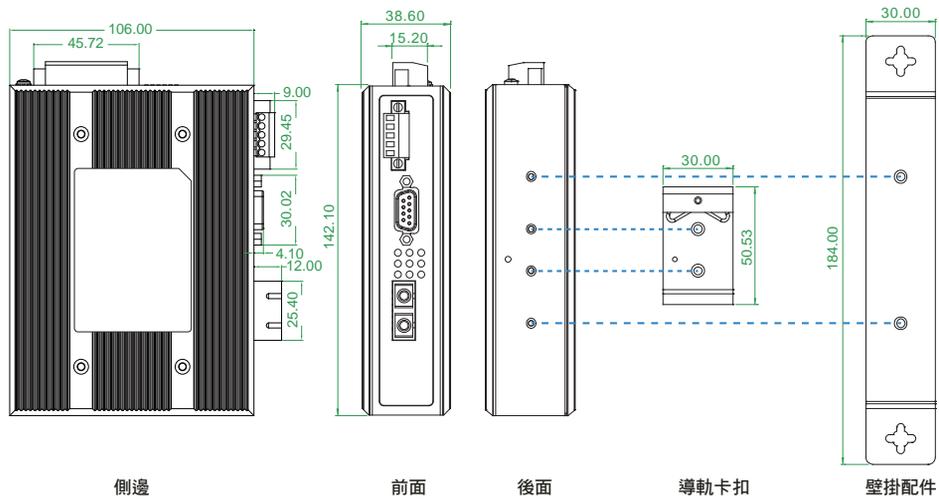


機構尺寸

IFC-FDC



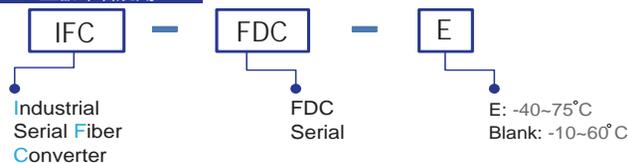
IFC-Serial



機構尺寸

| 型號 | Dual Channel | Serial | | | 光纖 | | 認證 | | | 操作溫度 | |
|--------------|--------------|--------|-----------|-----------------|-------|-------------|--------------|-------------------------|----|------|-----------|
| | | RS232 | RS422/485 | Isolation 2.5KV | SC/ST | Daisy Chain | 安全 UL60950-1 | EN61000-6-2 EN61000-6-4 | CE | | FCC |
| IFC-FDC | V | 2 | 1 | V | 2 | V | V | V | V | V | -10~60 °C |
| IFC-FDC-E | V | 2 | 1 | V | 2 | V | V | V | V | V | -40~75 °C |
| IFC-Serial | V | 2 | 1 | V | 1 | — | V | V | V | V | -10~60 °C |
| IFC-Serial-E | V | 2 | 1 | V | 1 | — | V | V | V | V | -40~75 °C |

型號命名規則



| Connector Type | Connectivity Distance |
|----------------|------------------------------|
| SC, ST | 002: 2km 030: 30km 060: 60km |

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 |

Example: IFC - FDC - E - SC002

NEW



IMC-1000C

10/100/1000Base-T to 1000Base-SX/LX
Fiber Converter

IMC-1000CS

10/100/1000Base-T to 100/1000Base-X SFP
Fiber Converter

IMC-1000C(CS)為千兆乙太網非網管型多媒體轉換器，此系列產品可支援10/100/1000Base-T電口與1000Base-X光口的轉換。此系列於面板上提供簡易的指撥式開關，其開關可設定光纖埠速度、選擇Store and Forward 或者Converter傳輸模式、開啟或關閉Link Fault Pass Through功能。搭配堅固的Din Rail 軌道式或壁掛安裝外殼，此產品專為惡劣環境，如工業網路、安全自動化應用、交通監控及智能交通系統（ITS），也適用於許多環境條件超出一般商規產品規格的軍事和公用事業的應用市場中。

功能特色

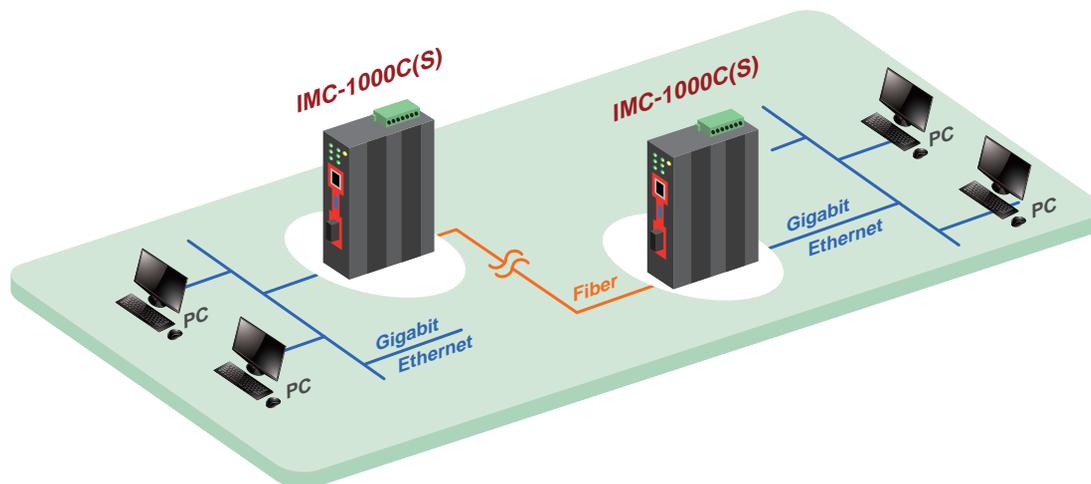
- 雙電源輸入 12/24/48VDC(9.6~60VDC) 冗餘備援
- 金屬外殼、IP30 防護、無風扇
- 寬溫工作範圍 (-20 ~ 75°C) (-E 寬溫機種)
- 通過 CE, FCC, 鐵道交通 EN 50121-4 認證
- 通過工業級 EMS(抗電磁干擾), EMI (電磁波干擾), EN61000-6-2、EN61000-6-4 認證
- Store-and-Forward mode and Pass through mode (set by DIP SW)
- 轉換 10/100/1000Base-T and 1000Base-X Fiber 介面
- 提供 DIP-Switch 設定功能
- 支援 LFPT (Link Fault Pass Through)

產品規格

| | |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 符合標準 | IEEE802.3 10Base-T 10Mbit/s Ethernet IEEE802.3u 100Base-TX, 100Base-FX, Fast Ethernet IEEE802.3ab 1000Base-T Gbit/s Ethernet over twisted pair IEEE802.3z 1000Base-X Gbit/s Ethernet over Fiber-Optic IEEE802.3x Flow Control |
| RJ-45 端口 | 10/100/1000Base-TX |
| 光纖端口 | 1000Base SX/LX, SC (IMC-1000C) 100/1000Base-X SFP Slot (IMC-1000CS) |
| 數據處理架構 | Store and Forward mode 或 Pass through mode 可以 DIP SW 設定 |
| Jumbo Frame | 9K bytes |
| 光纖參數 | Fiber Cable (Multi-mode): 50/125um, 62.5/125um Fiber Cable (Single-mode): 9/125um 波長: 1310nm (Multi-mode/Single-mode) 適用距離: (IMC-1000C) 500M (Multi-mode SX) 20KM (Single-mode) 40KM (Single-mode) SFP (IMC-1000CS), 距離視SFP Fiber收發器而定 |
| Link Fault Pass Through (LFPT) | TX-光纖: 當TX端口斷線, 此時多媒體轉換器將強制將光纖端口關閉 光纖-TX: 當光纖端口斷線, 此時多媒體轉換器將強制將TX端口關閉 |
| DIP Switch | 數據處理架構 OFF: Switch Mode ON: Converter Mode LFPT OFF:LFPT Disable ON: LFPT Enable Fiber Duplex OFF: Auto ON: Force Fiber Speed (僅適用於 IMC-1000CS) OFF: 1000Base-X ON: 100Base-FX |
| 連接器 | Fiber: SC (Multi-mode, 500M), SC (Single-mode, 20KM, 40KM) (IMC-1000C) SFP Slot (IMC-1000CS) RJ-45 Socket: CAT 5e Twisted Pair cable Auto MDI/MDI-X and Auto MDI/MDI-X 並支援 auto negotiation功能 |
| LED 指示燈 | Power: (綠) SFP/Fiber 端口 Link/Act (黃) RJ-45 端口: Speed & Link/Act 10/100 (綠), 1000 (黃) |
| 電壓極性保護 | 提供 |
| 電流過載保護 | 提供 |
| 電源供應 | 12/24/48VDC(9.6~60VDC) 或24VAC輸入 (可拔插式配接器) |

| | | | |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------|
| 耗電量 | 輸入電壓 | IMC-1000C | IMC-1000CS |
| | 12VDC | 2.1W | 1.8W |
| | 24VDC | 2.2W | 2W |
| | 48VDC | 3.4W | 2.9W |
| 可插拔式配接器 | 使用於輸入電源 (2 pin) | | |
| 工作濕度 | 5% to 95% (無冷凝) | | |
| 工作溫度 | -10 ~ 60°C (IMC-1000C, IMC-1000CS) -20 ~ 75°C (IMC-1000C-E, IMC-1000CS-E) | | |
| 儲存溫度 | -40 ~ 85°C | | |
| 外殼 | 金屬外殼、IP30防護、無風扇 | | |
| 尺寸 | 70x 30x 103 mm (D x W x H) | | |
| 重量 | 220公克 (IMC-1000C), 215公克 (IMC-1000CS) | | |
| 安裝方式 | Din Rail 軌道式安裝, 或壁掛式(選購配件) | | |
| MTBF | 325,508 (IMC-1000C) | 326,287 (IMC-1000CS) | (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 | 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 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 | | |
| 防撞擊 | IEC 60068-2-27 | | |
| 防摔 | IEC 60068-2-32 | | |
| 防震 | IEC 60068-2-6 | | |

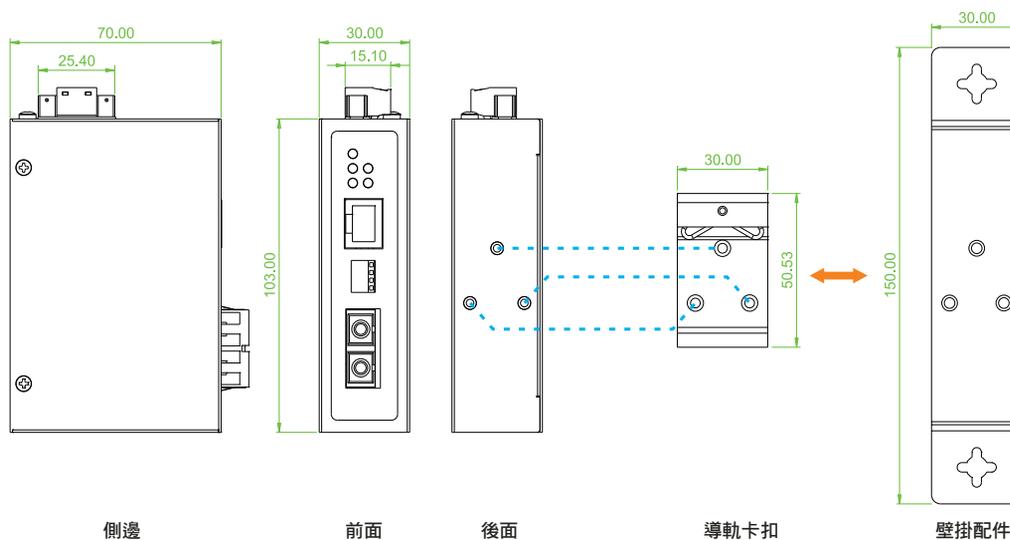
應用圖



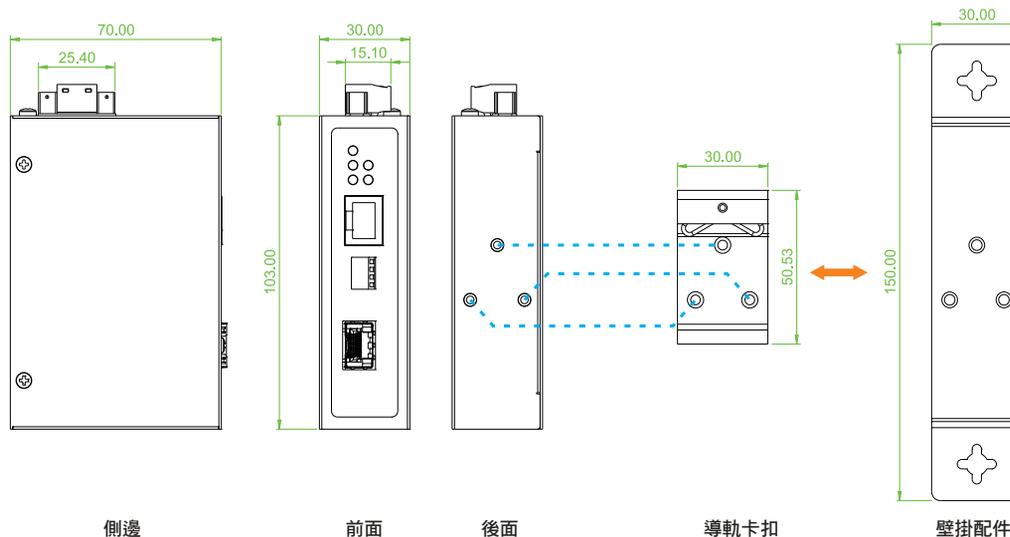
圖例：IMC-1000C(S) Media Converter Transmission

機構尺寸

IMC-1000C



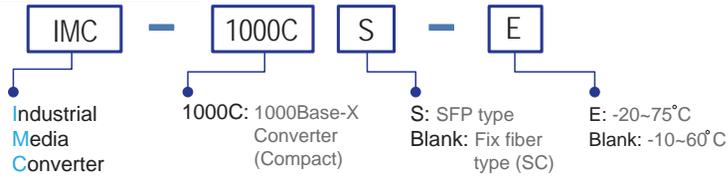
IMC-1000CS



訂購資訊

| 型號 | UTP | | 光纖 | | 認證 | | | 操作溫度 |
|--------------|-------------------|------------|------------------------------|--------------------|----------------------------|----|-----|----------|
| | 10/100/1000Base-T | 1000Base-X | Dual Speed 100/1000Base-X | 鐵道交通 EN50121-41 | EN61000-6-2 EN61000-6-4 | CE | FCC | |
| IMC-1000C | 1 | 1 SC | — | V | V | V | V | -10~60°C |
| IMC-1000C-E | 1 | 1 SC | — | V | V | V | V | -20~75°C |
| IMC-1000CS | 1 | — | 1 SFP | V | V | V | V | -10~60°C |
| IMC-1000CS-E | 1 | — | 1 SFP | V | V | V | V | -20~75°C |

型號命名規則



| Connector Type | Connectivity Distance |
|------------------------------|----------------------------------------------------------------------------|
| SC | 001:500M (M/M) 002:2km (M/M) 020:20km (S/M) 040:40km (S/M) |
| (IMC-1000 & IMC-1000-E only) | 020A: WDM 20km A type (TX:1310nm) 020B: WDM 20km B type (TX:1550nm)type |

Temperature Connector Type Connectivity Distance

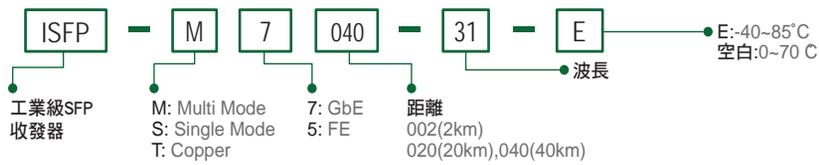
IMC - 1000C - [] - [] [] [] []

Example: IMC - 1000C - E - SC002

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 |
| IND-WMK03 | Wall Mount kit for Industrial product (Compact, 150x 30mm) |

SFP命名規則



NEW



IMC-100C

10/100Base-TX to 100Base-FX Fiber Converter

IMC-100C為一個Compact size高速乙太非網管型工業級多媒體轉換器，此系列產品可支援電10/100Base-TX與光100Base-FX之轉換。此系列於面板上提供簡易的指撥式開關，其開關可設定光纖埠速度、選擇Store and Forward 或者Converter傳輸模式、開啟或關閉電源告警功能、開啟或關閉埠失效告警功能以及開啟或關閉Link Fault Pass Through功能。搭配堅固的Din Rail軌道式或壁掛安裝外殼，此產品專為惡劣環境，如工業網路，安全自動化應用，交通監控，智能交通系統（ITS），也適用於許多環境條件超出一般商規產品規格的軍事和公用事業的市場應用中。

功能特色

- DC 電源輸入 12/24/48VDC(9.6~60VDC) 或 24VAC(18~36VAC)
- IP30 金屬外殼、Compact size、無風扇
- 寬溫工作範圍 (-40 ~ 75°C) (IMC-100C-E)
- 通過 CE, FCC, 鐵道交通 EN50121-4 認證標準
- 通過工業級 EMS(抗電磁干擾)、EMI (電磁波干擾)、EN61000-6-2、EN61000-6-4 認證標準通過 CE、FCC、鐵道交通 EN50121-4 認證
- Store-and-Forward mode and Pass through mode (set by DIP SW)
- 支援 LFPT (Link Fault Pass Through)
- 轉換 10/100Base-TX and 100Base-FX cable 介面
- 提供 4pin DIP-Switch 設定功能

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 802.3x Flow Control |
| RJ-45 端口 | 10/100Base-TX |
| 光纖端口 | 100Base-FX (SC/ST connectors) |
| Switch Architecture | Store and Forward in Switch mode Supports 1024 MAC addresses in Switch mode |
| Ethernet Packet length | 2046Byte (Max) in Switch mode |
| Jumbo Frame | 9K bytes in Pass through (Converter mode) |
| 光纖參數 | Fiber Cable (Multi-mode): 50/125um, 62.5/125um Fiber Cable (Single-mode): 9/125um 波長: 1310nm (Multi-mode/Single-mode) 適用距離: 2KM (Multi-mode) 30KM (Single-mode), 50KM (Single-mode) |
| Link Fault Pass Through (LFPT) | TX-光纖: 當TX端口斷線, 此時多媒體轉換器將強制將光纖端口關閉 光纖-TX: 當光纖端口斷線, 此時多媒體轉換器將強制將TX端口關閉 |
| DIP Switch | 強制 Fiber 端口 Duplex OFF: 全雙工 ON: 半雙工 LFPT: ON: 啟動 LFPT (Link Fault Pass through) OFF: 關閉 LFPT Architecture: OFF: Switch mode ON: Pass through Converter mode |
| 連接器 | Fiber: SC (Multi-mode, 2km), SC (Single-mode, 30km, 50KM) ST (Multi-mode, 2km), ST (Single-mode, 30km, 50KM) RJ-45 Socket: CAT-3/5 (10/100Mbps) Twisted Pair cable 自動 MDI/MDI-X 和支援 Auto-Negotiation 功能 |
| LED 指示燈 | PWR (綠): ON: Power active / OFF: Power is inactive Fiber (綠): LNK/Act (綠): Link & Active Dup (綠): Fiber port Full or Half duplex LAN: 100 (綠): 100M Link & Active 10 (綠): 10M Link & Active |
| 電壓極性保護 | 提供 |
| 電流過載保護 | 提供 |
| 電源供應 | 12/24/48VDC(9.6~60VDC) 或 24VAC (18~36VAC) 配備電壓極性保護功能及可拔插式配接器 |

耗電量

| 輸入電壓 | Watt(W) |
|-------|---------|
| 12VDC | 1.8W |
| 24VDC | 1.8W |
| 48VDC | 2.1W |

可插拔式配接器

使用於輸入電源 (2 pin)

工作濕度

5% ~ 95% (無凝)

工作溫度

-10 ~ 60°C (IMC-100C)

-40 ~ 75°C (IMC-100C-E)

儲存溫度

-40 ~ 85°C

外殼

IP30金屬外殼、Compact size、無風扇

尺寸

70 x 30 x 103 mm (D x W x H)

重量

215公克

安裝方式

Din Rail 軌道式安裝, 或壁掛式(選購配件)

MTBF

319,971小時
(MIL-HDBK-217)

產品保固

5年

認證

EMC

CE

EMI

FCC Part 15 Subpart B Class A, CE EN 55022 Class A

軌道交通

EN50121-4

重工業環境抗電磁干擾

EN 61000-6-2

重工業環境電磁輻射干擾

EN 61000-6-4

EMS

EN61000-4-2 (ESD) Level 3, Criteria B

抗電磁干擾等級

EN61000-4-3 (RS) Level 3, Criteria A

EN61000-4-4 (EFT) Level 3, Criteria A

EN61000-4-5 (Surge) Level 3, Criteria B

EN61000-4-6 (CS) Level 3, Criteria A

EN61000-4-8 (PFMF) Field strength 300A/m Criteria A

防撞擊

IEC 60068-2-27

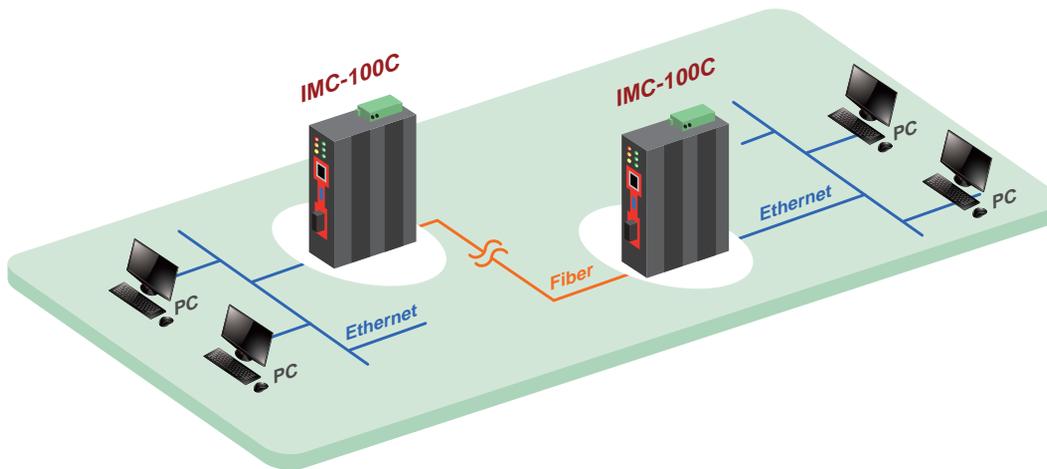
防摔

IEC 60068-2-32

防震

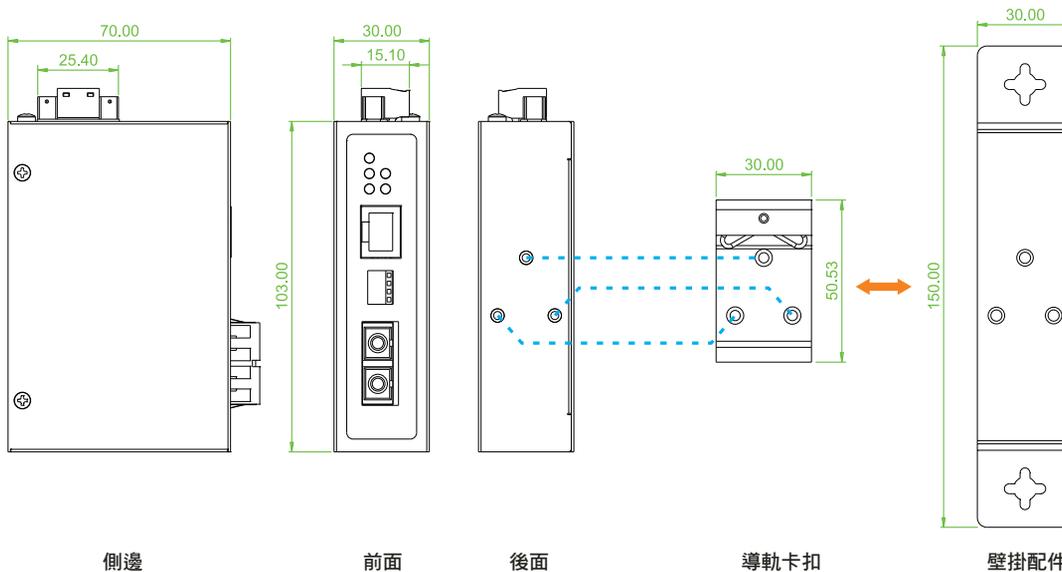
IEC 60068-2-6

應用圖



圖例：IMC-100C Media Converter Transmission

機構尺寸

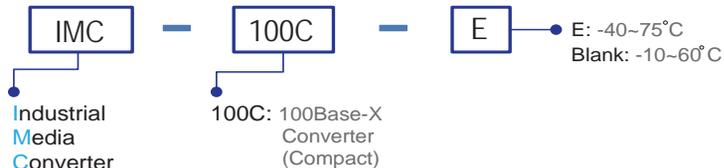


6 Compact Ind. Unmanaged FE Converter

訂購資訊

| 型號 | UTP | 光纖 | 認證 | | | | 操作溫度 |
|------------|---------------|------------|-------------------|----------------------------|----|-----|----------|
| | 10/100Base-TX | 100Base-FX | 鐵道交通 EN50121-4 | EN61000-6-2 EN61000-6-4 | CE | FCC | |
| IMC-100C | 1 | 1 SC | V | V | V | V | -10~60°C |
| IMC-100C-E | 1 | 1 SC | V | V | V | V | -40~75°C |

型號命名規則



| Connector Type | Connectivity Distance |
|----------------|---------------------------------------------|
| SC, ST | 002:2km (M/M) 030:30km (S/M) 050:50km (S/M) |
| | 020A: WDM 20km A type (TX:1310nm) |
| | 020B: WDM 20km B type (TX: 1550nm) |

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 |
| IND-WMK03 | Wall Mount kit for Industrial product (Compact, 150x 30mm) |

Example: **IMC - 100C - E - SC002**

Temperature Connector Connectivity
Type Type Distance



IMC-1000

10/100/1000Base-T to 100/1000Base-SX/LX
Fiber Converter

IMC-1000S

10/100/1000Base-T to 100/1000Base-X SFP Slot
Fiber Converter

IMC-1000(S)為千兆乙太網非網管型多媒體轉換器，此系列產品可支援10/100/1000Base-T電口與100/1000Base-X光口的轉換。此系列於面板上提供簡易的指撥式開關，其開關可設定光纖埠速度、選擇Store and Forward 或者Converter傳輸模式、開啟或關閉Link Fault Pass Through功能。搭配堅固的Din Rail 軌道式或壁掛安裝外殼，此產品專為惡劣環境，如工業網路、安全自動化應用、交通監控及智能交通系統（ITS），也適用於許多環境條件超出一般商規產品規格的軍事和公用事業的應用市場中。

功能特色

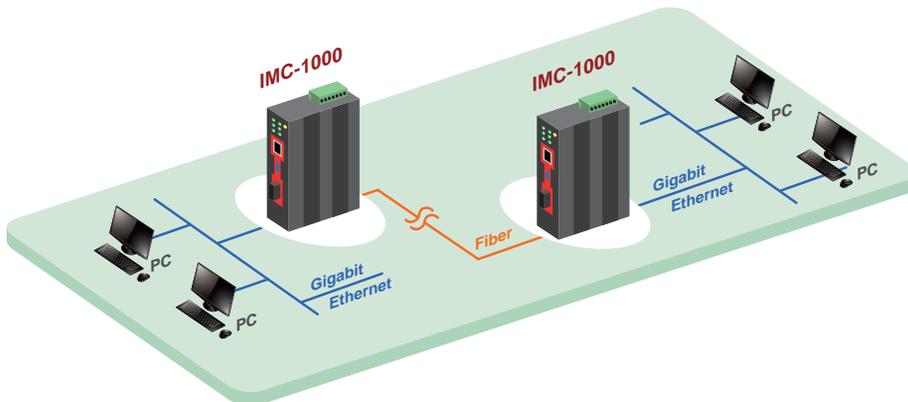
- 雙電源輸入 12/24/48VDC(9.6~60VDC) 冗餘備援
- 金屬外殼、IP30 防護、無風扇
- 寬溫工作範圍 (-20 ~ 75°C) (IMC-1000-E, IMC-1000S-E)
- 通過 UL60950-1, CE, FCC, 鐵道交通 EN 50121-4 認證
- 通過工業級 EMS(抗電磁干擾), EMI (電磁波干擾), EN61000-6-2、EN61000-6-4 認證
- Store-and-Forward mode and Pass through mode (set by DIP SW)
- 轉換 10/100/1000Base-T and 100/1000Base-X Fiber 介面
- 提供 DIP-Switch 設定功能
- 支援 LFPT (Link Fault Pass Through)

產品規格

| | |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 符合標準 | IEEE802.3 10Base-T 10Mbit/s Ethernet IEEE802.3u 100Base-TX, 100Base-FX, Fast Ethernet IEEE802.3ab 1000Base-T Gbit/s Ethernet over twisted pair IEEE802.3z 1000Base-X Gbit/s Ethernet over Fiber-Optic IEEE802.3x Flow Control |
| RJ-45 端口 | 10/100/1000Base-TX |
| 光纖端口 | 1000Base SX/LX, 1000Base-FX SC (IMC-1000, IMC-1000-E) SFP Slot (IMC-1000S, IMC-1000S-E) |
| 數據處理架構 | Store and Forward mode or Pass through mode set by DIP SW |
| Jumbo Frame | 9K bytes |
| 光纖參數 | Fiber Cable (Multi-mode): 50/125um, 62.5/125um Fiber Cable (Single-mode): 9/125um 波長: 1310nm (Multi-mode/Single-mode) 適用距離: (IMC-1000, IMC-1000-E) 500M (Multi-mode SX) 20KM (Single-mode) 40KM (Single-mode) SFP(IMC-1000S, IMC-1000S-E), 距離視Fiber收發器而定 |
| Link Fault Pass Through (LFPT) | TX-光纖: 當TX端口斷線, 此時多媒體轉換器將強制將光纖端口關閉 光纖-TX: 當光纖端口斷線, 此時多媒體轉換器將強制將TX端口關閉 |
| DIP Switch | Off: Alarm For Power Enable On: Alarm For Power Disable Off: Alarm For Port Enable On: Alarm For Port Disable Off: LFPT Disable On: LFPT Enable Off: Switch Mode On: Converter Mode Off: 1000Base-X On: 100Base-FX |
| 連接器 | Fiber: SC (Multi-mode, 500M), SC (Single-mode, 20KM, 40KM) (IMC-1000, IMC-1000-E) SFP Slot (IMC-1000S, IMC-1000S-E) RJ-45 Socket: CAT 5e Twisted Pair cable Auto MDI/MDI-X and Auto MDI/MDI-X 並支援 auto negotiation功能 |
| LED指示燈 | Power 1 (綠), Power 2 (綠), Fault (琥珀色) Fiber LNK/ACT(綠): ON:網路連線, OFF:無網路連線 BLK:接收/數據傳送 SFP Fiber速度: 黃:1000Base-X, 綠:100Base-FX RJ-45埠: 速度: 10(關閉), 100(綠), 1000(黃) LNK/ACT for RJ-45(綠): ON:網路連線, OFF:無網路連線 BLK: 網絡活躍 |
| 電壓極性保護 | 提供 |
| 電流過載保護 | 提供 |

| | |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 電源供應 | 雙電源輸入12/24/48VDC(9.6~60VDC) 冗餘備援 (可拔插式配接器) Provide DC Power JACK adapter cable for external Power adapter |
| 耗電量 | 4.2W |
| 告警繼電器規格 | Relay outputs with current carrying capacity of 1 A @24VDC |
| 可插拔式配接器 | 內含2個備援輸入電源, 一個繼電器警告 |
| 工作濕度 | 5% to 95% (無冷凝) |
| 工作溫度 | -10 ~ 60°C (IMC-1000, IMC-1000S) -20 ~ 75°C (IMC-1000-E, IMC-1000S-E) |
| 儲存溫度 | -40 ~ 85°C |
| 外殼 | 金屬外殼、IP30防護、無風扇 |
| 尺寸 | 106 x 38 x 142 mm (D x W x H) |
| 重量 | 630公克 (IMC-1000, IMC-1000-E) 620公克 (IMC-1000S, IMC-1000S-E) |
| 安裝方式 | Din Rail 軌道式安裝或壁掛式 |
| MTBF | 563,813小時 (IMC-1000, IMC-1000-E) 578,980小時 (IMC-1000S, IMC-1000S-E) (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 | 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 | EN61000-4-2 (ESD) Level 3, Criteria B |
| 抗電磁干擾等級 | 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 |
| 防撞擊 | IEC 60068-2-27 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC 60068-2-6 |

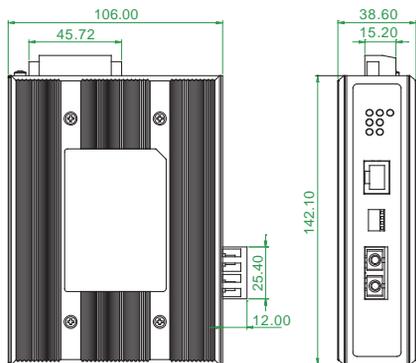
應用圖



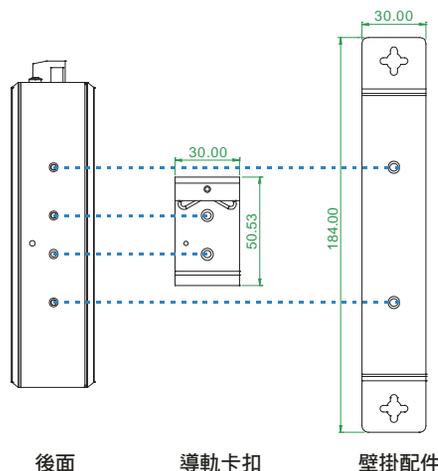
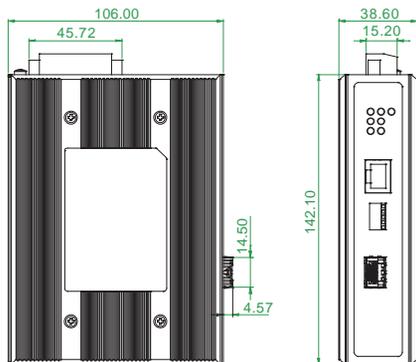
圖例：IMC-1000 Media Converter Transmission

機構尺寸

IMC-1000(E)



IMC-1000S(E)



後面 導軌卡扣 壁掛配件

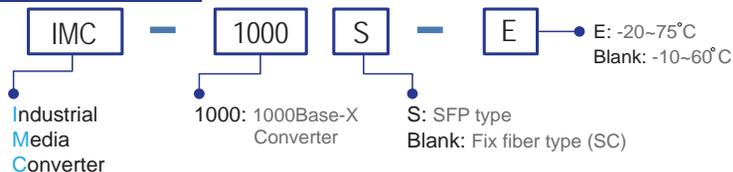
側邊

前面

訂購資訊

| 型號 | UTP | 光纖 | 認證 | | | | | 操作溫度 |
|-------------|--------------------|---------------------------|--------------|----------------|-------------------------|----|-----|----------|
| | 10/100/1000 Base-T | Dual Speed 100/1000Base-X | 安全 UL61950-1 | 鐵道交通 EN50121-4 | EN61000-6-2 EN61000-6-4 | CE | FCC | |
| IMC-1000 | 1 | 1 SC | V | V | V | V | V | -10~60°C |
| IMC-1000-E | 1 | 1 SC | V | V | V | V | V | -40~75°C |
| IMC-1000S | 1 | 1 SFP | V | V | V | V | V | -10~60°C |
| IMC-1000S-E | 1 | 1 SFP | V | V | V | V | V | -40~75°C |

型號命名規則

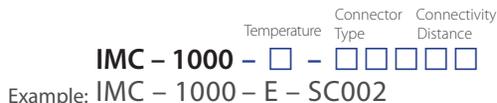


| Connector Type | Connectivity Distance |
|------------------------------|-----------------------------------------------------------------------------|
| SC | 001:500M (M/M) 002:2km (M/M) 020:20km (S/M) 040:40km (S/M) |
| (IMC-1000 & IMC-1000-E only) | 020A: WDM 20km A type (TX:1310nm) 020B: WDM 20km B type (TX: 1550nm)type |

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





IMC-100

10/100Base-TX to 100Base-FX Fiber Converter

IMC-100為百兆乙太網非網管型多媒體轉換器，此系列產品可支援10/100Base-TX電口與100Base-FX光口的轉換。此系列於面板上提供簡易的指撥式開關，其開關可設定啟動或關閉Flow control，選擇全雙工或半雙工、選擇Store and Forward 或者 Converter傳輸模式、開啟或關閉Link Fault Pass Through功能。搭配堅固的Din Rail 軌道式或壁掛安裝外殼，此產品專為惡劣環境，如工業網路、安全自動化應用、交通監控及智能交通系統（ITS），也適用於許多環境條件超出一般商規產品規格的軍事和公用事業的應用市場中。

功能特色

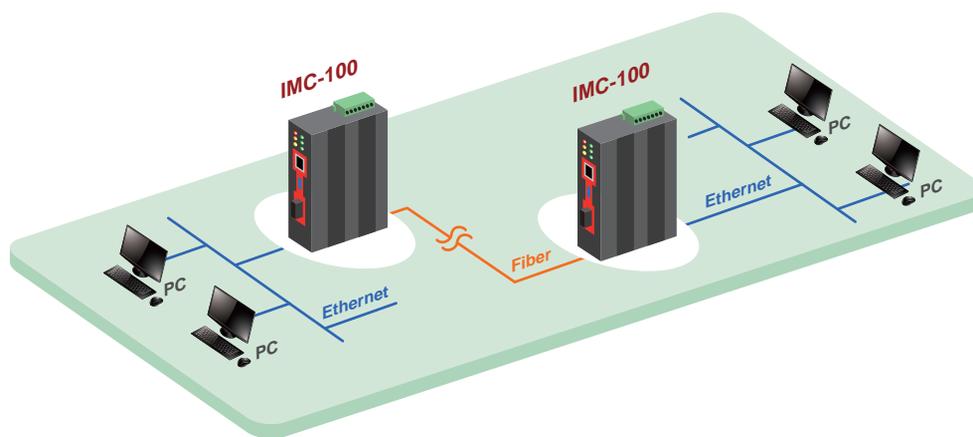
- 雙電源輸入 12/24/48VDC(9.6~58VDC) 冗餘備援
- 金屬外殼、IP30 防護、無風扇
- 寬溫工作範圍 (-40 ~ 75°C) (IMC-100-E)
- 通過 UL60950-1、CE、FCC、鐵道交通 EN 50121-4 認證
- 通過工業級 EMS(抗電磁干擾)，EMI (電磁波干擾)，EN61000-6-2、EN61000-6-4 認證
- Store-and-Forward mode and Pass through mode (set by DIP SW)
- 10/100Base-TX 電口 與 100Base-FX 光口傳輸介面間的資料轉換
- 提供 DIP-Switch 設定功能
- 支援 LFPT (Link Fault Pass Through)

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 802.3x Flow Control |
| RJ-45 端口 | 10/100Base-TX |
| 光纖端口 | 100Base-FX (SC/ST connectors) |
| 數據處理架構 | Store and Forward mode 或 Pass through mode 可以 DIP SW 設定 |
| Ethernet Packet length | 2046Byte (Max) in Switch mode |
| Jumbo Frame | 9K bytes in Pass through (Converter mode) |
| 光纖參數 | Fiber Cable (Multi-mode): 50/125um, 62.5/125um Fiber Cable (Single-mode): 9/125um 波長: 1310nm (Multi-mode/Single-mode) 適用距離: 2KM (Multi-mode) 30KM (Single-mode) 50KM (Single-mode) |
| Link Fault Pass Through (LFPT) | TX-光纖: 當TX端口斷線, 此時多媒體轉換器將強制將光纖端口關閉 光纖-TX: 當光纖端口斷線, 此時多媒體轉換器將強制將TX端口關閉 |
| DIP Switch | TP Auto Negotiation OFF: Auto Mode, ON: Force Mode Force TP Speed OFF: 100 Mbps, ON: 10 Mbps Force TP Duplex OFF: Full Duplex, ON: Half Duplex DIP Switch: ON: Enables LFPT (Link Fault Pass through) OFF: Disables LFPT (Link Fault Pass through) DIP Switch: ON: Flow Control Enable OFF: Flow Control Disable DIP Switch: OFF: Switching mode ON: Pass through Converter mode |
| 連接器 | 光口: SC/ST (Multi-mode, 2KM), SC/ST (Single-mode, 30KM, 50KM) 電口: CAT-3/5 (10/100Mbps) Twisted Pair cable Auto MDI/MDI-X and Auto-Negotiation Function Support |
| LED指示燈 | Power 1 (綠), Power 2 (綠), Fault (琥珀色) Fiber (Green): ON: Connected to network OFF: Not connected to network/ BLK: Receive/Transmit Data RJ-45埠: 速度: 10(關閉), 100(綠) LNK/ACT for RJ-45(綠): ON:網路連線, OFF:無網路連線 BLK: 接收/傳送數據 |
| 電壓極性保護 | 提供 |
| 電流過載保護 | 提供 |

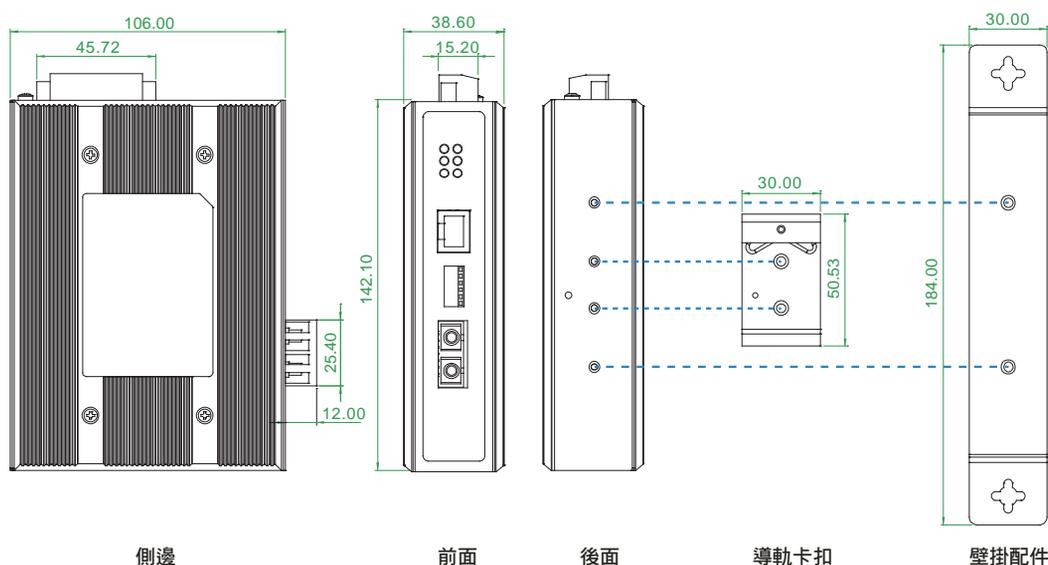
| | |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 電源供應 | 雙電源輸入12/24/48VDC(9.6~58VDC) 冗餘備援 (可拔插式配接器) Provide DC Power JACK adapter cable for external power adapter |
| 告警繼電器規格 | Relay outputs with current carrying capacity of 1 A @24VDC |
| 可插拔式配接器 | 內含2個備援輸入電源, 一個繼電器警告 |
| 耗電量 | 2.9 W |
| 工作濕度 | 5% ~ 95% (無冷凝) |
| 工作溫度 | -10 ~ 60°C (IMC-100) -40 ~ 75°C (IMC-100-E) |
| 儲存溫度 | -40 ~ 85°C |
| 外殼 | 金屬外殼、IP30防護、無風扇 |
| 尺寸 | 106 x 38.6 x 142.1mm (D X W X H) |
| 重量 | 0.62公斤 |
| 安裝方式 | Din Rail 軌道式安裝或壁掛式 |
| MTBF | 852,727 Hrs |
| 產品保固 | 5 年 |
| 認證 | |
| EMI | CE |
| EMI (Electromagnetic Interference) | FCC Part 15 Subpart B Class A, CE EN55022 Class A |
| 軌道交通 | 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 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 |
| 防撞擊 | IEC 60068-2-27 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC 60068-2-6 |

應用圖



圖例：IMC-100 Media Converter Transmission

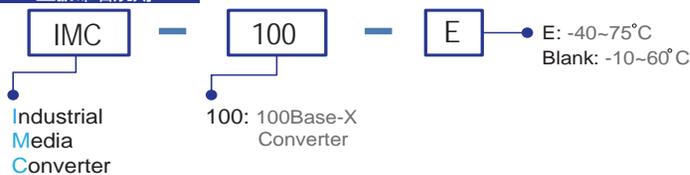
機構尺寸



訂購資訊

| 型號 | UTP | 光纖 | 認證 | | | | 操作溫度 | |
|-----------|---------------|------------|-----------------|-------------------|----------------------------|----|------|----------|
| | 10/100Base-TX | 100Base-FX | 安全 UL60950-1 | 鐵道交通 EN50121-4 | EN61000-6-2 EN61000-6-4 | CE | | FCC |
| IMC-100 | 1 | 1 SC | V | V | V | V | V | -10~60°C |
| IMC-100-E | 1 | 1 SC | V | V | V | V | V | -40~75°C |

型號命名規則



| Connector Type | Connectivity Distance |
|----------------|------------------------------------------------------------------------------------------------------------------------|
| SC, ST | 002:2km (M/M) 030:30km (S/M) 050:50km (S/M) 020A: WDM 20km A type (TX:1310nm) 020B: WDM 20km B type (TX: 1550nm) |

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 |

Temperature Connector Connectivity
Type Type Distance

IMC - 100 - [] - [] [] [] []

Example: IMC - 100 - E - SC002



IMC-1000M

10/100/1000Base-T to 100/1000Base-SX/LX
Managed Fiber Converter

IMC-1000MS

10/100/1000Base-T to 100/1000Base-X SFP
Managed Fiber Converter

IMC-1000M(S)是一部 10/100/1000Base-T 對 100/1000Base-X 千兆乙太網光電轉換器，此產品光纖介面可選擇雙速的固定式光纖收發器或SFP收發器，具有堅固的外殼及 Din Rail 軌道式或掛壁式安裝方式。此產品專為惡劣環境，如工業網路、安全自動化應用、交通監控、安防自動化應用、IP surveillance、城市安防及智能交通系統（ITS），也適用於許多環境條件超出一般商規產品規格的軍事和公用事業的市場應用中。IMC-1000M(S)也提供許多進階的L2功能(VLAN、Storm Control、Ingress/Egress bandwidth control)，並可透過容易使用的Web 使用者介面或標準SNMP管理程式(像是CTC SmartView™)加以管理。藉由內建的OAM(操作、管理、維護及佈建)功能，例如loop-back test and dying gasp功能，IMC-1000M(S)可從具備OAM功能的FRM220-1000MS透過遠端in-band management方式加以監控，以達到集中化的管理方式，進而將現場服務降到最低，協助減少營運成本。

功能特色

- 10/100/1000Base-T 電口與 100/1000Base-X 光纖介面之間的傳輸介面轉換
- 支援雙速 (100M 或 1000M) 光纖端口或 SFP 可以提供選擇百兆或千兆速度的光纖傳輸
- 雙電源輸入 12/24/48VDC(9.6~60VDC) 冗餘備援
- 金屬外殼、IP30 防護、無風扇
- 寬溫工作範圍 (-20 ~ 75°C) (IMC-1000M-E, IMC-1000MS-E)
- 通過 UL60950-1, CE, FCC, 鐵道交通 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 Jumbo Frame 9K bytes packet
- Ingress /Egress bandwidth control with 64K granularity
- Auto Laser Shutdown (ALS)
- 支援 LFPT(Link Fault Pass Through)
- 支援 SFP 的 Digital Diagnostic Monitor Interface (DDMI)
- 支援 16 個 IEEE802.1 Q Tag VLAN Group
- MIB counters
- 支援 SNMP alarm trap for power loss and port link down
- Web based and SNMP for management (圖 1, 3)
- 支援 Remote Loop-Back test, Dying gasp (Remote power failure detection)
- 透過 FRM220 主機加上 FRM220-1000MS 介面卡可執行 in-band management 管理方式 (圖 2)
- 支援 SmartView™ 集中式的管理系統

產品規格

| | | | |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 符合標準 | IEEE802.3 10Base-T 10Mbit/s Ethernet IEEE802.3u 100Base-TX, 100Base-FX, Fast Ethernet IEEE802.3ab 1000Base-TX Gbit/s Ethernet over twisted pair IEEE802.3z 1000Base-X Gbit/s Ethernet over Fiber-optic IEEE802.3x Flow Control and Back pressure IEEE802.3ah OAM management | LED指示燈 | Power 1 (綠), Power 2 (綠), Fault (琥珀色) Fiber LNK/ACT(綠): ON:網路連線, OFF:無網路連線, BLK:傳送/接收數據 光纖速度: 黃:1000Base-X, 綠:100Base-X RJ-45埠: 速度: 10(關閉), 100(綠), 1000(黃) LNK/ACT for RJ-45(綠): ON:網路連線, OFF:無網路連線, BLK: 傳送/接收數據 |
| 光纖端口 | 100Base-X or 1000Base-X set by Web Supports Auto Laser Shutdown (ALS) (IMC-1000M, IMC-1000M-E) SFP slot for 100Base-X or 1000Base-X, 100M/1000M speed set by Web (IMC-1000MS, IMC-1000MS-E) | 電壓極性保護 | 提供 |
| RJ-45 端口 | 10/100/1000Base-T | 電流過載保護 | 提供 |
| CPU watch dog | 提供 | 電源供應 | 12/24/48VDC (9.6~60VDC), 可拔插式配接器具保護功能之極性冗餘備援 Provide DC Power JACK adapter cable for external power adapter |
| 按鈕 | 重啟, 回復出廠設定 | 告警繼電器規格 | Relay outputs with current carrying capacity of 1 A @24VDC Relay alarm output for power fail or port link down |
| Jumbo Frame | 9K bytes | 可插拔式配接器 | Provide 2 redundant power, alarm relay contact, 7 Pin |
| 光纖參數 | Fiber Cable (Multi-mode): 50/125um, 62.5/125um Fiber Cable (Single-mode): 9/125um 波長: 1310nm (Multi-mode/Single-mode) 適用距離: 500M (Multi-mode SX) 20KM (Single-mode) 40KM (Single-mode) (IMC-1000M, IMC-1000M-E) SFP機種, 傳輸距離視插入的 SFP光纖收發器而定 (IMC-1000MS, IMC-1000MS-E) | 耗電量 | 4.8 W |
| Link Fault Pass Through (LFPT) | TX-光纖: 當TX端口斷線, 此時多媒體轉換器將強制將光纖端口關閉 光纖-TX: 當光纖端口斷線, 此時多媒體轉換器將強制將TX端口關閉 | 工作濕度 | 5% ~ 95% (無冷凝) |
| 連接器及Pin腳配置 | 光纖: SC (Multi-mode, 500M), SC (Single-mode, 20KM, 40KM) (IMC-1000M, IMC-1000M-E) (IMC-1000MS, IMC-1000MS-E) SFP Slot (IMC-1000MS, IMC-1000MS-E) RJ-45: CAT 5e (10/100/1000Mbps) Twisted Pair cable Auto MDI/MDI-X and Auto-Negotiation Function Supports | 工作溫度 | -10° ~ 60°C (IMC-1000M, IMC-1000MS) -20 ~ 75°C (IMC-1000M-E, IMC-1000MS-E) |
| | | 儲存溫度 | -40 ~ 85°C |
| | | 外殼 | 金屬外殼、IP30防護、無風扇 |
| | | 尺寸 | 106 x 38.6 x 142.1mm (D x W x H) |
| | | 重量 | 0.63公斤 (IMC-1000M, IMC-1000M-E) 0.62公斤 (IMC-1000MS, IMC-1000MS-E) |
| | | 安裝方式 | Din Rail 軌道式安裝或壁掛式 |
| | | MTBF | 544,905小時 (IMC-1000MS, IMC-1000MS-E) (MIL-HDBK-217) 559,059小時 (IMC-1000M, IMC-1000M-E) (MIL-HDBK-217) |
| | | 產品保固 | 5年 |

| 認證 | |
|------------------------------------|---------------------------------------------------|
| EMI | CE |
| EMI (Electromagnetic Interference) | FCC Part 15 Subpart B Class A, CE EN55022 Class A |
| 軌道交通 | 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 | EN61000-4-2 (ESD) Level 3, Criteria B |
| 抗電磁干擾等級 | 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 |
| 防撞擊 | IEC 60068-2-27 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC 60068-2-6 |

軟體規格

SNMP or Web Mode(圖一、三)

| | |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 管理 | Ingress/Egress bandwidth control with 64K granularity Web management、透過Web升級韌體 支援SNMP、MIB管理 支援DHCP客戶端的自動IP配置 Supports 802.1Q tag VLAN, 16個 Tag VLAN group, MIB counters display |
| 設定 | IP設定、密碼設定、光電轉換器設定 端口設定、MIB計數器、SNMP設定 VLAN group 設定, 告警設定 |
| 診斷&監控 | Supports Link Fault Pass-Through (LFPT) Function Broadcast/Multicast/Unicast storm filter SNMP alarm trap for power loss and port link Up/Down |

In-Band Remote mode (圖二)

| | |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 管理 | 透過FRM220 主機加上 FRM220-1000MS 介面卡可執行 in-band management 管理方式 Ingress/Egress bandwidth control with 64K granularity |
| 設定 | IP配置、光電轉換器設定、端口設定、MIB counter VLAN group 設定,告警設定 |
| 診斷&監控 | Remote loop-back test Dying gasp (remote power failure detection) Supports Link Fault Pass-Through (LFPT) Function Broadcast/Multicast/Unicast storm filter |

應用圖

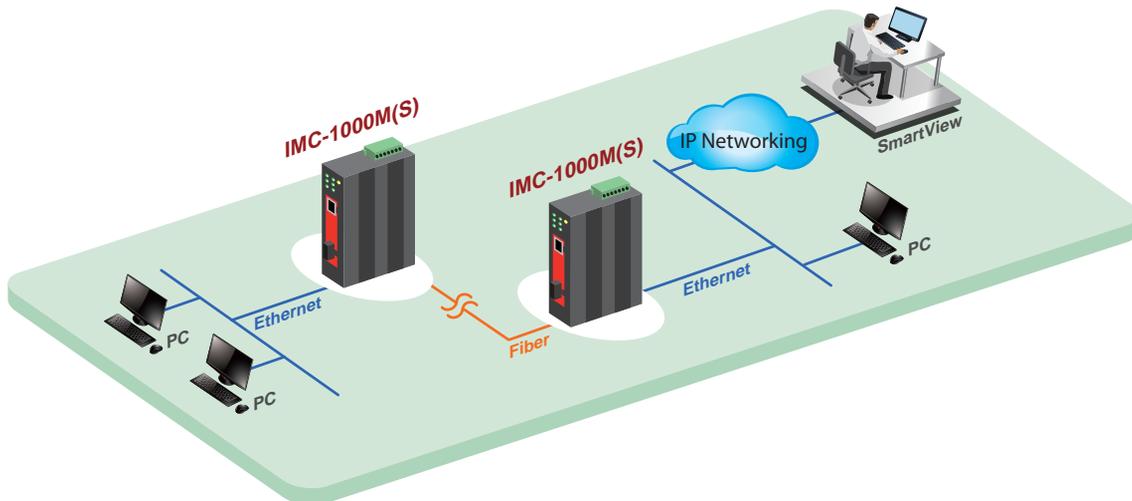


圖1：IMC-1000M(S) Management by SNMP, SmartView

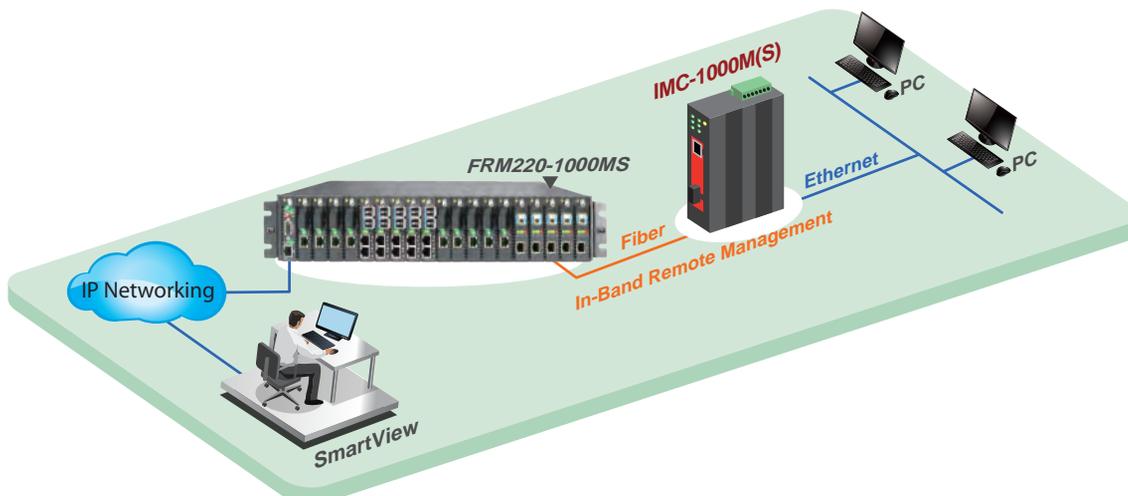


圖2：IMC-1000M(S) Application in Remote, in-Band Management

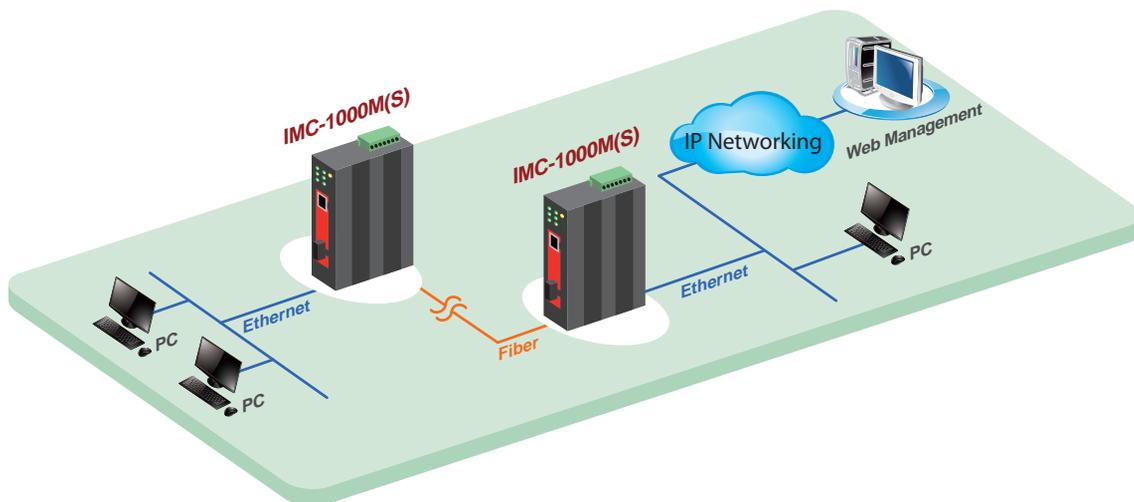
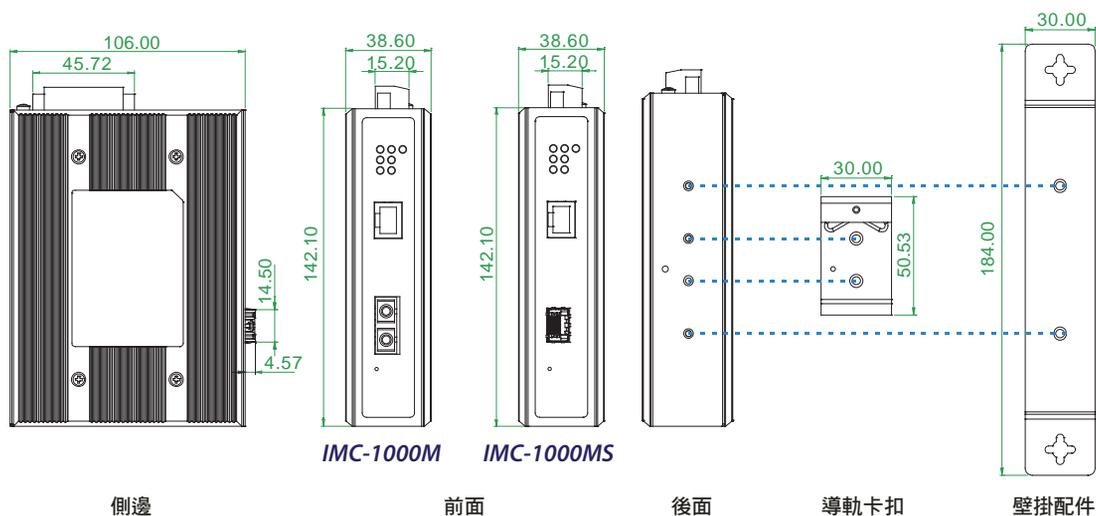


圖3 : IMC-1000M(S) Application in Web Management

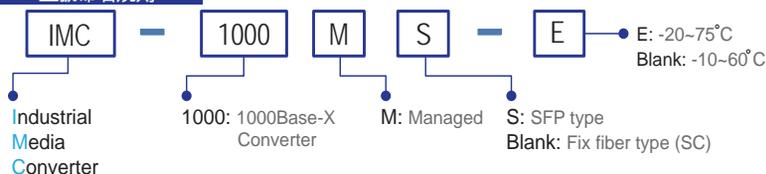
機構尺寸



訂購資訊

| 型號 | 管理 | UTP | | 光纖 | | 認證 | | | | 操作溫度 | |
|--------------|----|--------------------|--|---------------------------|--|--------------|----------------|-------------------------|----|------|----------|
| | | 10/100/1000 Base-T | | Dual Speed 100/1000Base-X | | 安全 UL60950-1 | 鐵道交通 EN50121-4 | EN61000-6-2 EN61000-6-4 | CE | | FCC |
| IMC-1000M | V | 1 | | 1 SC | | V | V | V | V | V | -10~60 C |
| IMC-1000M-E | V | 1 | | 1 SC | | V | V | V | V | V | -20~75 C |
| IMC-1000MS | V | 1 | | 1 SFP | | V | V | V | V | V | -10~60 C |
| IMC-1000MS-E | V | 1 | | 1 SFP | | V | V | V | V | V | -20~75 C |

型號命名規則

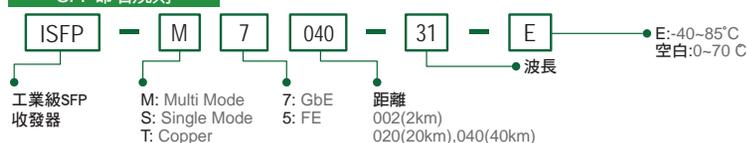


| Connector Type | Connectivity Distance |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| SC (IMC-1000M, IMC-1000M-E only) | 001:500M (M/M) 002:2km (M/M) 020:20km (S/M) 040:40km (S/M) 020A: WDM 20km A type (TX:1310nm) 020B: WDM 20km B type (TX: 1550nm) |

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



Example: IMC - 1000M - E - SC002



IMC-100M

10/100Base-TX to 100Base-FX Managed Fiber Converter

IMC-100M是一部10/100Base-TX 對 100Base-FX百兆乙太網光電轉換器，此產品光纖介面100M採用固定式光纖收發器，具有堅固的外殼及 Din Rail 軌道式或掛壁式安裝方式。此產品專為惡劣環境，如工業網路、安全自動化應用、交通監控、安防自動化應用、IP surveillance、城市安防及智能交通系統（ITS），也適用於許多環境條件超出一般商規產品規格的軍事和公用事業的市場應用中。IMC-100M也提供許多進階的L2功能(VLAN、Storm Control、ingress/egress bandwidth control)，並可透過容易使用的Web 使用者介面或標準SNMP管理程式(像是CTC SmartView™)加以管理。藉由內建的OAM(操作、管理、維護及佈建)功能，例如loop-back test and dying gasp功能。IMC-100M可從具備OAM功能的FRM220-1000MS透過遠端in-band management方式加以監控，以達到集中化的管理方式，進而將現場服務降到最低，協助減少營運成本。

功能特色

- 10/100Base-TX 電口與 100Base-FX 光纖介面之間的傳輸介面轉換
- 雙電源輸入 12/24/48VDC(9.6~60VDC) 冗餘備援
- 金屬外殼、IP30 防護、無風扇
- 寬溫工作範圍 (-20 ~ 75°C) (IMC-100M-E)
- 通過 UL60950-1, CE, FCC, 鐵道交通 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 Jumbo Frame 9K bytes packet
- Ingress /Egress bandwidth control with 64K granularity
- Auto Laser Shutdown (ALS)
- 支援 LFPT(Link Fault Pass Through)
- 支援 16 個 IEEE802.1 Q Tag VLAN Group
- MIB counters
- 支援 SNMP alarm trap for power loss and port link down
- Web based and SNMP for management (圖 1, 3)
- 支援 Remote Loop-Back test, Dying gasp (Remote power failure detection)
- 透過 FRM220 主機加上 FRM220-1000MS 介面卡可執行 in-band management 管理方式 (圖 2)
- 支援 SmartView™ 集中式的管理系統

產品規格

| | | | |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------------------------------------------------------------------------------------------------------------------|
| 符合標準 | IEEE802.3 10Base-T 10Mbit/s Ethernet IEEE802.3u 100Base-TX, 100Base-FX, Fast Ethernet IEEE802.3x Flow Control and Back pressure IEEE802.3ah OAM management | 電壓極性保護 | 提供 |
| 光纖端口 | 100Base-X Auto Laser Shutdown (ALS) (IMC-100M) | 電流過載保護 | 提供 |
| RJ-45 端口 | 10/100Base-TX | 電源供應 | 冗餘備援12/24/48VDC (9.6~60VDC) 雙電源輸入, 可插拔式配接器 Provide DC Power JACK adapter cable for external power adapter |
| CPU watch dog | 提供 | 告警繼電器規格 | Relay outputs with current carrying capacity of 1 A @24VDC Relay alarm output for power fail or port link down |
| 按鈕 | 重啟, 回復出廠設定 | 可插拔式配接器 | Provide 2 redundant power, alarm relay contact, 7 Pin |
| Jumbo Frame | 9K bytes | 耗電量 | 4.8 W |
| 光纖參數 | Fiber Cable (Multi-mode): 50/125um,62.5/125um Fiber Cable (Single-mode): 9/125um 波長: 1310nm (Multi-mode/Single-mode) 適用距離: 2 KM (Multi-mode) 30KM (Single-mode) 50KM (Single-mode) | 工作濕度 | 5% ~ 95% (無冷凝) |
| Link Fault Pass Through (LFPT) | TX-光纖: 當TX端口斷線, 此時多媒體轉換器將強制將光纖端口關閉 光纖-TX: 當光纖端口斷線, 此時多媒體轉換器將強制將TX端口關閉 | 工作溫度 | -10° ~ 60°C (IMC-100M) -20 ~ 75°C (IMC-100M-E) |
| 連接器及Pin腳配置 | 光纖: SC (Multi-mode, 2KM), SC (Single-mode, 30KM, 50KM) RJ-45: CAT 5e (10/100Mbps) Twisted Pair cable Auto MDI/MDI-X and Auto-Negotiation Function Supports | 儲存溫度 | -40 ~ 85°C |
| LED指示燈 | Power 1 (綠), Power 2 (綠), Fault (琥珀色) Fiber LNK/ACT(綠): ON:網路連線, OFF:無網路連線, BLK:傳送/接收數據 RJ-45埠: 速度: 10(關閉), 100(綠) LNK/ACT for RJ-45(綠): ON:網路連線, OFF:無網路連線, BLK: 傳送/接收數據 | 外殼 | 金屬外殼、IP30防護、無風扇 |
| | | 尺寸 | 106 x 38.6 x 142.1mm (D x W x H) |
| | | 重量 | 0.63公斤 |
| | | 安裝方式 | Din Rail 軌道式安裝或壁掛式 |
| | | MTBF | 778,604 小時 (MIL-HDBK-217) |
| | | 產品保固 | 5年 |

| 認證 | |
|---------------------------------------|---------------------------------------------------|
| EMI | CE |
| EMI (Electromagnetic Interference) | FCC Part 15 Subpart B Class A, CE EN55022 Class A |
| 軌道交通 | 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 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 |
| 防撞擊 | IEC 60068-2-27 |
| 防摔 | IEC 60068-2-32 |
| 防震 | IEC 60068-2-6 |

軟體規格

SNMP or Web Mode(圖一、三)

| | |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 管理 | Ingress/Egress bandwidth control with 64K granularity Web management、透過Web升級韌體 支援SNMP、MIB管理 支援DHCP客戶端的自動IP配置 Supports 802.1Q tag VLAN, 16個 Tag VLAN group, MIB counters display |
| 設定 | IP設定、密碼設定、光電轉換器設定 端口設定、MIB計數器、SNMP設定 VLAN group 設定, 告警設定 |
| 診斷&監控 | Supports Link Fault Pass-Through (LFPT) Function Broadcast/Multicast/Unicast storm filter SNMP alarm trap for power loss and port link Up/Down |

In-Band Remote mode (圖二)

| | |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 管理 | 透過FRM220 主機加上 FRM220-1000MS 介面卡可執行 in-band management 管理方式 Ingress/Egress bandwidth control with 64K granularity |
| 設定 | IP配置、光電轉換器設定、端口設定、MIB counter VLAN group 設定, 告警設定 |
| 診斷&監控 | Remote loop-back test Dying gasp (remote power failure detection) Supports Link Fault Pass-Through (LFPT) Function Broadcast/Multicast/Unicast storm filter |

應用圖

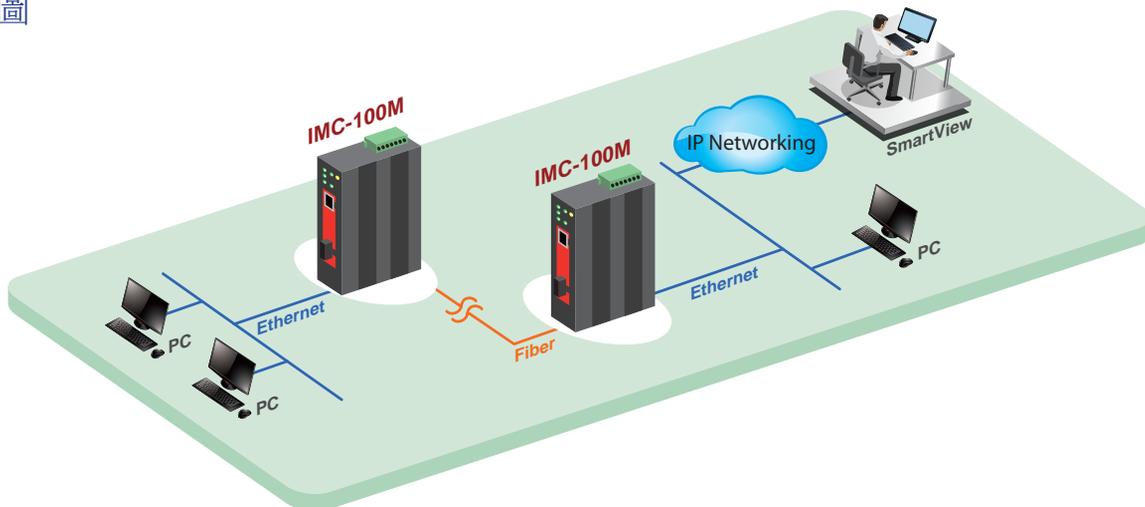


圖1：IMC-100M Management by SNMP, SmartView

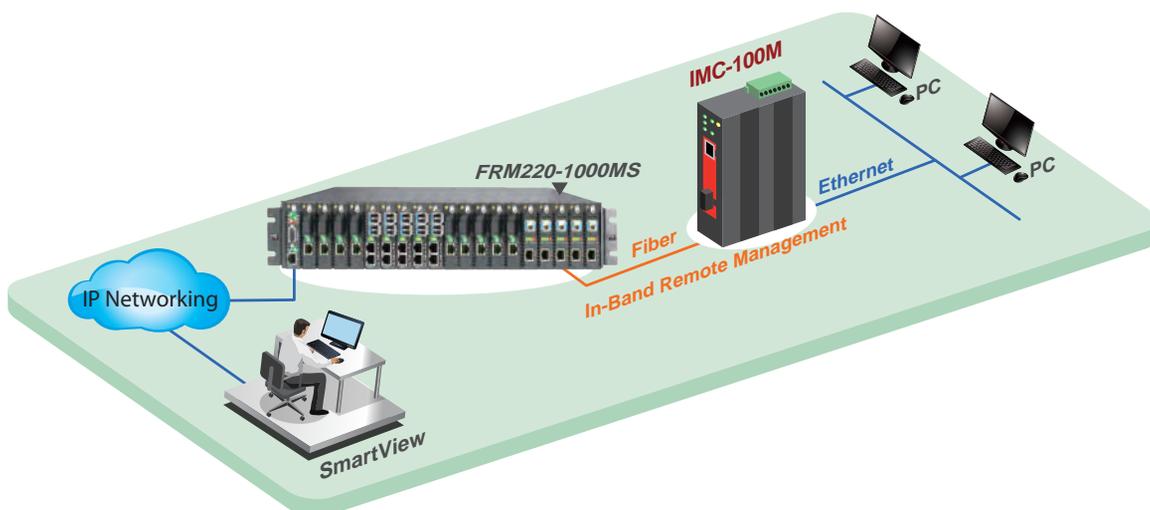


圖2：IMC-100M Application in Remote, in-Band Management

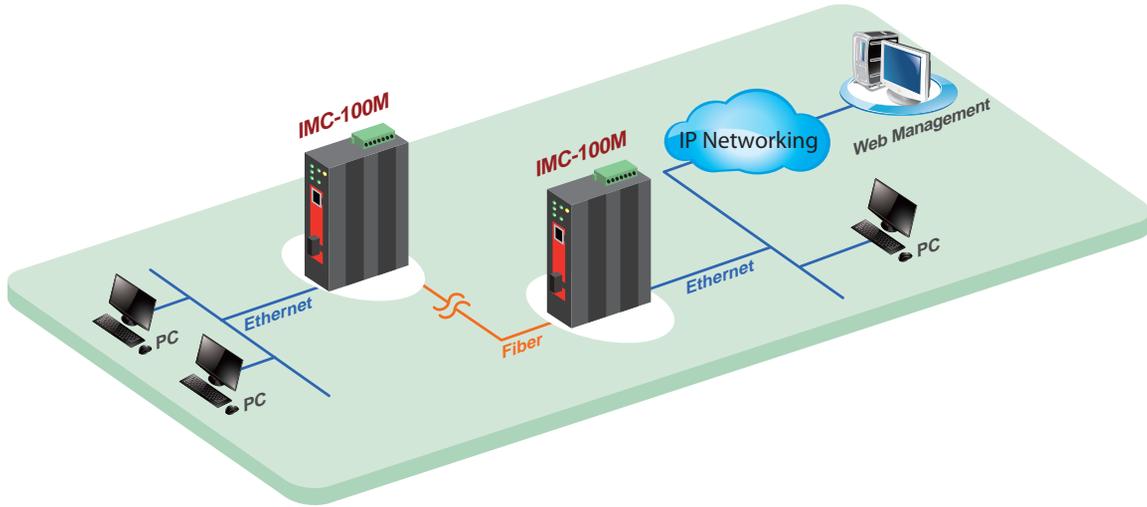
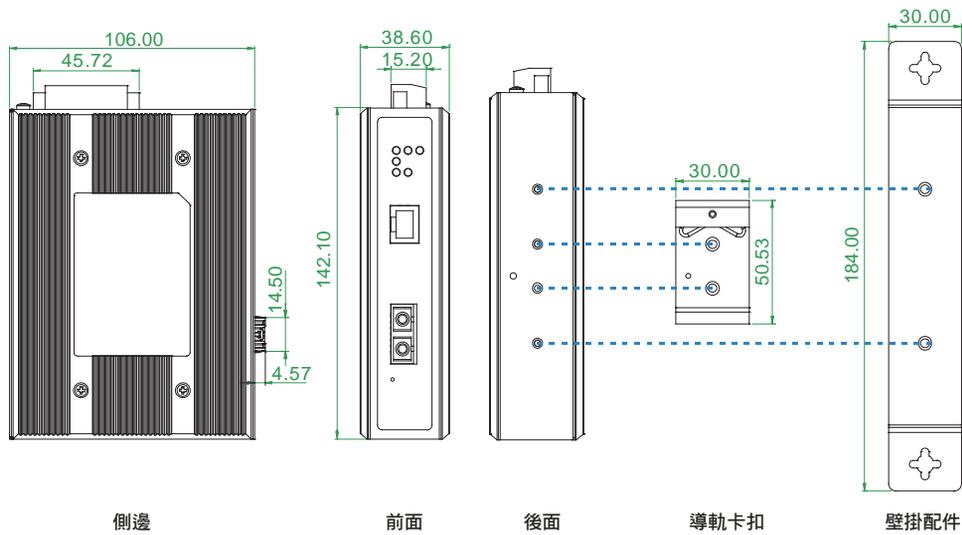


圖3：IMC-100M Application in Web Management

機構尺寸



側邊

前面

後面

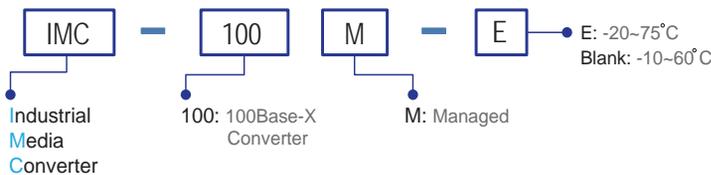
導軌卡扣

壁掛配件

訂購資訊

| 型號 | 管理 | UTP | | 光纖 | | 認證 | | | | 操作溫度 |
|------------|----|---------------|------------|-----------------|-------------------|----------------------------|----|-----|---|----------|
| | | 10/100Base-TX | 100Base-FX | 安全 UL60950-1 | 鐵道交通 EN50121-4 | EN61000-6-2 EN61000-6-4 | CE | FCC | | |
| IMC-100M | V | 1 | 1 SC/ST | V | V | V | V | V | V | -10~60°C |
| IMC-100M-E | V | 1 | 1 SC/ST | V | V | V | V | V | V | -20~75°C |

型號命名規則



| Connector Type | Connectivity Distance |
|----------------|----------------------------------------------------------------------------------------------------------------------------|
| SC, ST | 002: 2KM (M/M) 030k: 30km (S/M) 050: 50km (S/M) 020A: WDM 20km A type (TX:1310nm) 020B: WDM 20km B type (TX: 1550nm) |

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 |

Example: **IMC-100M** - -
 Example: **IMC-100M** - E - SC002



STE100A-232

1-Port RS-232 IP Device Server

STE100A-Serial

1-Port RS-232/422/485 IP Device Server

此系列設備可以提供從主機到串列式裝置間,透過TCP/IP或UDP/IP連線控制位於網路中任何地方的RS-232/RS-422/485串列裝置。此產品的一側配備DB9端口(串列式)連線,而另一側則配備10/100 Mbps乙太網連線。它能將PLC、警報感測器等串列裝置與IP網路相連接。其應用包括工業/工廠自動化、公共安全和監視系統。此產品附帶有Windows的驅動程式會在Windows上安裝一個虛擬COM,其可將虛擬COM端口對應至網路內IP串列伺服器裝置的IP位址,以便讓Windows應用程式能在乙太網上存取遠端串列裝置。此裝置可做為UDP,或是TCP連線的伺服器或用戶端。其應用模式包括direct IP 模式、virtual COM 模式和paired 模式。

功能特色

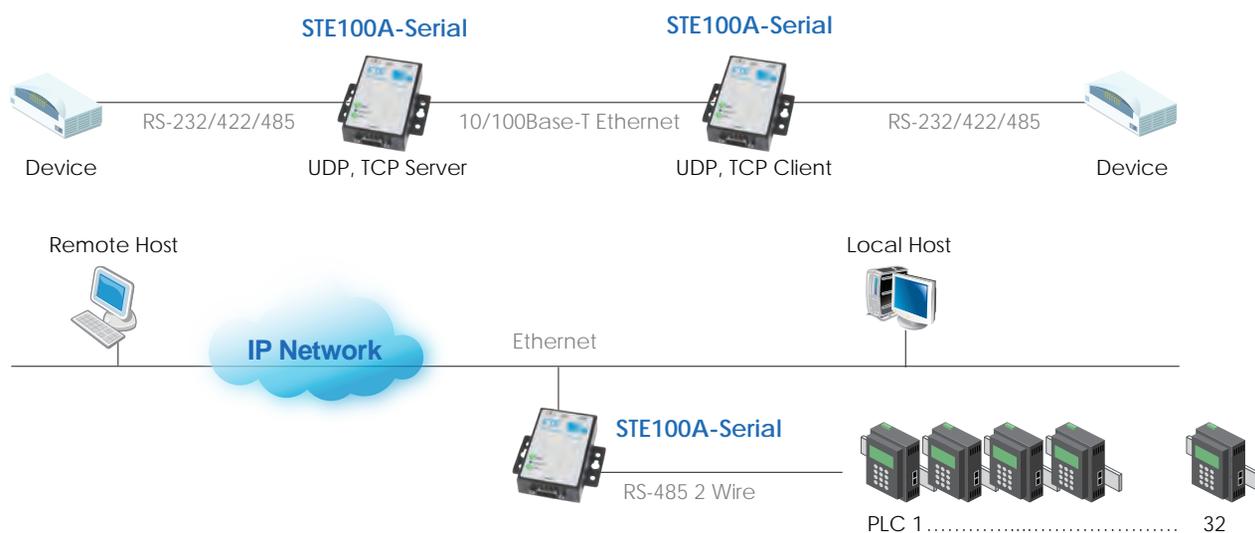
- 10/100Mbps 乙太網端口
- 230.4kbps serial 界面
- TCP Server, TCP client, Virtual com mode, UDP
- 支援 DHCP, HTTP, ICMP, ARP, IP, UDP, TCP
- 支援 Windows 應用程式
- 可經由 WEB 瀏覽器進行設定
- RS-232 界面 (STE100A-232)
- Flexible RS-232/422/485 界面 (STE100A-Serial)
- 2 線 (半雙工) 或 4 線 (全雙工) (STE100A-Serial)
- +12V 至 +48V 電源輸入, 低功率耗電

產品規格

| | |
|------------------------|----------------------------------------------------------------------|
| 一般標準 | LED Ready, TP Link/Act, Data TX/RX |
| OS supported | Windows XP / 2000 / 2003 / 2008 / VISTA / WIN7 / WIN8 |
| Serial界面 | RS-232/422/485 (STE100A-Serial) RS-232 (STE100A-232) |
| Serial 連接器 | DB9 Male |
| Baudrate | 110 to 230.4Kbps |
| Data bits | 5, 6, 7, 8 |
| Stop bits | 1, 1.5 for Data bits 5 mode; 1, 2 for data bits 6, 7, 8 mode |
| Parity | 無, 偶數, 奇數 |
| Flow Control | 無, 或 RTS / CTS for RS-232 全雙工(4-Wire) 或半雙工(2-Wire) for RS-422/485 |
| Data Packing Delimiter | 1,2 |

| | |
|------------|-------------------------------------------------------|
| LAN界面 | RJ-45 連接器, IEEE802.3 10/100Base-TX |
| 通訊模式 | TCP Server, TCP Client, Virtual COM mode, UDP |
| 通訊協議 | TCP, UDP, IP, ARP, ICMP, HTTP, DHCP |
| Management | Web頁面, 韌體升級 |
| 安全性 | 密碼設定 |
| 電源 | 12VDC |
| 工作溫度 | 0 ~ 60°C |
| 儲存溫度 | -10 ~ 70°C |
| 工作濕度 | 0 ~ 90% (無冷凝) |
| 安裝方式 | 壁掛式,或Din Rail 軌道式安裝 (選配件) |
| 面板安裝 | 是 |
| 尺寸 | 80.7 x 84.2 x 22mm (D x W x H) (包含Din Rail 軌道安裝耳片) |
| 認證 | CE, FCC |

應用圖



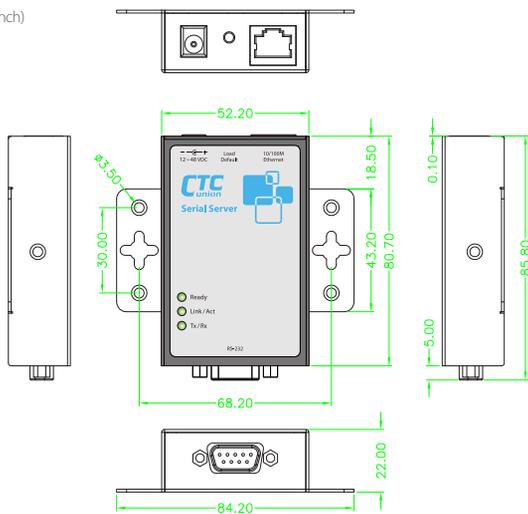
產品外觀介紹



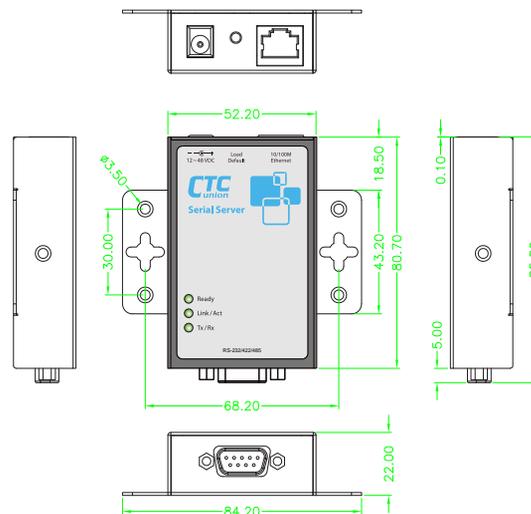
機構尺寸

STE100A-232

Unit: mm (inch)



STE100A-Serial



訂購資訊

| Model Name | Description |
|-------------------|---------------------------------------------------------------------------|
| STE100A-232 | 1-port RS232 device server with AC power adapter |
| STE100A-Serial | 1-port RS232/422/485 device server with AC power adapter |
| 選購配件 | |
| STE100A-Serial-WT | STE100A-Serial DB9 wiring terminal |
| STE100A/DRK01 | STE100A/RS232,STE100A/Serial DIN-Rail Mounting Kit |
| 選購電源 | |
| DC-APT/12V | -48VDC to 12VDC Adapter - 0.83 Amp, 10 Watts , Output 12VDC, Input -48VDC |





DR-4524 Output 24VDC, 45W
MDR-40-24 Output 24VDC, 40W
MDR-60-24 Output 24VDC, 60W
DR-120-24 Output 24VDC, 120W
DRP-240-48 Output 48VDC, 240W

若要提升您工業級設備的可靠度並將停機時間減至最低，電源供應器須選用穩定可靠的工業等級，才是最妥適的方法。CTC Union的交流電轉直流電電源供應器通過各種安全認證及工業級認證，100%相容於我們所有的工業級交換器和光電轉換器。

產品特色

- 保護：短路 / 過載 / 電壓超標
- LED 電源指示燈
- 透過空氣流動達到冷卻目的
- Din Rail 軌道式安裝
- 通過 UL508, UL60950-1, CE 認證
- 通過工業級 EMS(抗電磁干擾) 認證
- 產品保固 3 年

產品規格

| 產品名稱 | DRP-240-48 | DR-120-24 | DR-4524 | |
|--------------|-------------------|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| 電源輸出 | DC電壓 | 48V | 24V | 24V |
| | 額定電流 | 5A | 5A | 2A |
| | 電流範圍 | 0-5A | 0-5A | 0-2A |
| | 額定功率 | 240W | 120W | 48W |
| | 輸出電壓調整範圍 | 48-53V | 24-28V | 21.6-26.4V |
| 電源輸入 | 電壓範圍 | 85-264VAC / 120-370VDC | 88-132VAC / 176-264VAC, 248-370VDC by switch | 85-264VAC / 120-370VDC |
| | 頻率範圍 | 47-63Hz | 47-63Hz | 47-63Hz |
| | Efficiency (Typ.) | 85% | 84% | 80% |
| 防護 | 過載 | 105-150% rated 電源輸出 保護方式：限定恆流，故障原因排除後自動回復 | 105-150% rated 電源輸出 保護方式：限定恆流，故障原因排除後自動回復 | 105-150% rated 電源輸出 保護方式：限定恆流，故障原因排除後自動回復 |
| | 輸出電壓超標範圍及防護方式 | 54-60V 保護方式：關閉電源輸出，電源重啟後，自動回復正常 | 29-33V 保護方式：關閉電源輸出，電源重啟後，自動回復正常 | 27.6-32.4V 保護方式：關閉電源輸出，以Zener Diode 鉗制輸出電壓 |
| | 告警繼電器規格 | DC OK Relay | | |
| 指示燈 | LED | 開啟指示燈 | 開啟指示燈 | 開啟指示燈 |
| 外殼 | 尺寸 | 100 x 125.5 x 125.2 mm (D x W x H) | 100 x 65.5 x 125.2mm (D x W x H) | 67 x 78 x 93 mm (D x W x H) |
| | 安裝方式 | Din Rail 軌道式安裝 | Din Rail 軌道式安裝 | Din Rail 軌道式安裝 |
| | 工作溫度 | -10-70°C | -10-60°C | -10-50°C |
| 環境 | 工作濕度 | 20-90% RH 無冷凝 | 20-90% RH 無冷凝 | 20-90% RH 無冷凝 |
| | 儲存溫度/濕度 | -20-85°C, 10-95% RH | -20-85°C, 10-95% RH | -20-85°C, 10-95% RH |
| | Vibration | 通過IEC60068-2-6認證 | 通過IEC60068-2-6認證 | 通過IEC60068-2-6認證 |
| | 安全標準 | 通過UL508, UL60950-1 認證標準 | 通過UL508, UL60950-1 認證標準 | 通過UL508 approved認證標準 |
| 安全性 & EMC 認證 | EMC Emission | 通過Compliance to EN55011, EN55022 (CISPR22), EN61204-3 Class B, EN61000-3-2, -3認證 | 通過EN55011, EN55022 (CISPR22) Class B, EN61000-3-2, -3認證 | 通過EN55011, EN55022 (CISPR22) Class B, EN61000-3-2, -3認證 |
| | EMC Immunity | 通過EN61000-4-2, 3, 4, 5, 6, 8, 11, EN55024, EN61000-6-2, EN61204-3, heavy industry level, criteria A認證 | 通過EN61000-4-2, 3, 4, 5, 6, 8, 11, EN55024, EN61000-6-2 heavy industry level, criteria A認證 | 通過EN61000-4-2, 3, 4, 5, 6, 8, 11, EN55024, EN61000-6-2 (EN50082-2), heavy industry level, criteria A認證 |
| 其他 | PFC | 內置 Active PFC | | |
| | MTBF | 289.9K hrs min. MIL-HDBK-217F (25°C) | 136.8Khrs min. MIL-HDBK-217F (25°C) | 364.6K hrs min. MIL-HDBK-217F (25°C) |
| | 保固 | 三年 | 三年 | 三年 |

| 產品名稱 | MDR-40-24 | MDR-60-24 | |
|-------------|-------------------|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| 電源輸出 | DC電壓 | 24V | 24V |
| | 額定電流 | 1.7A | 2.5A |
| | 電流範圍 | 0 ~ 1.7A | 0~2.5A |
| | 額定功率 | 40.8W | 60W |
| | 輸出電壓調整範圍 | 24 ~ 30V | 24~30V |
| 電源輸入 | 電壓範圍 | 85 ~ 264VAC / 120 ~ 370VDC | 85 ~ 264VAC / 120 ~ 370VDC |
| | 頻率範圍 | 47 ~ 63Hz | 47 ~ 63Hz |
| | Efficiency (Typ.) | 88% | 88% |
| 防護 | 過載 | 105 ~ 150% rated 電源輸出 保護方式：限定恆流，故障原因排除後自動回復 | 105 ~ 150% rated 電源輸出 保護方式：限定恆流，故障原因排除後自動回復 |
| | 輸出電壓超標範圍及防護方式 | 31.2 ~ 36V 保護方式：關閉電源輸出，電源重啟後，自動回復正常 | 31.2 ~ 36V 保護方式：關閉電源輸出，電源重啟後，自動回復正常 |
| 告警繼電器規格 | DC OK Relay | DC OK Relay will Close In Normal Relay contact rating(max.): 30V/1A resistive | DC OK Relay will Close Relay contact rating(max.): 30V/1A resistive |
| 指示燈 | LED | DC 輸出正常指示燈 | 開啟指示燈 |
| 外殼 | 尺寸 | 100 x 40 x 90 mm (D x W x H) | 100 x 40 x 90 mm (D x W x H) |
| | 安裝方式 | Din Rail 軌道式安裝 | Din Rail 軌道式安裝 |
| 環境 | 工作溫度 | -20 ~ 70°C | -20 ~ 70°C |
| | 工作濕度 | 20 ~ 90% RH 無冷凝 | 20 ~ 90% RH 無冷凝 |
| | 儲存溫度/濕度 | -40 ~ 85°C , 10 ~ 95% RH | -40 ~ 85°C , 10 ~ 95% RH |
| | Vibration | 通過IEC60068-2-6認證 | 通過IEC60068-2-6認證 |
| 安全性& EMC 認證 | Safety Standards | UL508, UL60950-1 approved | UL508, UL60950-1 approved |
| | EMC Emission | 通過EN55011, EN55022 (CISPR22), EN61204-3 Class B, EN61000-3-2,-3認證 | 通過EN55011, EN55022 (CISPR22), EN61204-3 Class B, EN61000-3-2,-3認證 |
| | EMC Immunity | 通過EN61000-4-2, 3, 4, 5, 6, 8, 11, EN55024, EN61000-6-2, EN61204-3, heavy industry level, criteria A認證 | 通過EN61000-4-2, 3, 4, 5, 6, 8, 11, EN55024, EN61000-6-2, EN61204-3, heavy industry level, criteria A認證 |
| 其他 | PFC | | |
| | MTBF | 301.7K hrs min. MIL-HDBK-217F (25°C) | 299.2K hrs min. MIL-HDBK-217F (25°C) |
| | 保固 | 三年 | 三年 |

訂購資訊

| 型號 | Input AC Voltage Range | Output Voltage | Output Voltage Adj. Range | Output Power | 操作溫度 |
|------------|---------------------------|----------------|---------------------------|--------------|-----------|
| DR-4524 | 85~264VAC | 24VDC | 21.6~26.4V | 45W | -10~+50°C |
| MDR-40-24 | 85~264VAC | 24VDC | 24~30V | 40W | -20~+70°C |
| MDR-60-24 | 85~264VAC | 24VDC | 24~30V | 60W | -20~+70°C |
| DR-120-24 | "88~132VAC 176~264VAC" | 24VDC | 24~28V | 120W | -10~+50°C |
| DRP-240-48 | 85~264VAC | 48VDC | 48~53V | 240W | -10~+70°C |



Industrial SFP Transceiver

1.25G 1000Base-X for Optic
1.25G 1000Base-T for Copper
155Mbps 100Base-FX for Optic

CTC Union的工規級SFP收發器具備高度可靠性，適合用於1.25G/155M bps所規定的序列光纖資料通訊應用。收發器以+3.3V電源供應運作，設計用於單模或多模光纖，並以1310nm/1550nm/850nm的波長運作。每個SFP收發器皆含有一個傳輸器光學次模組(TOSA)、一個接收器光學次模組(ROSA)和一個電子次模組。CTC Union的工規級SFP收發器能確保您網路運作時具有最大的可靠性、效能和彈性。

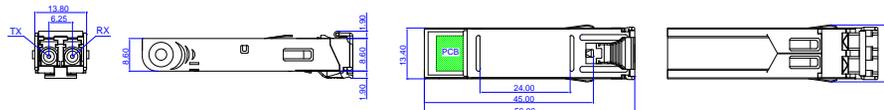
產品特色

- 此系列的所有 SFP，都經檢測與 CTC 的工規級交換機達最佳效能及相容
- 3.3V 電源供應
- 雙工或單工 LC 插座連接器
- 熱插拔功能
- 低耗電
- 所有千兆乙太 SFP 都符合 IEEE802.3z 1000Base-X 及 IEEE802.3ab 1000Base-T 規範
- 所有高速乙太 SFP 都符合 IEEE802.3u 100Base-FX 規範
- 工業標準 Small Form Pluggable (SFP) 封裝
- 符合 Multi-Source Agreement (MSA) Small Form Factor Pluggable (SFP) 規範
- 通過 Eye safety with Class 1 laser 產品標準 IEC825-1 認證
- 通過 CE, FCC class B 認證
- 通過 RoHS 認證
- 五年保固

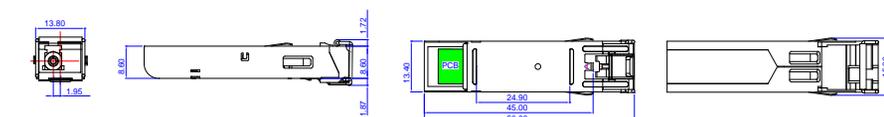
千兆乙太網路SFP收發器



Gigabit Duplex LC



Gigabit BiDi LC



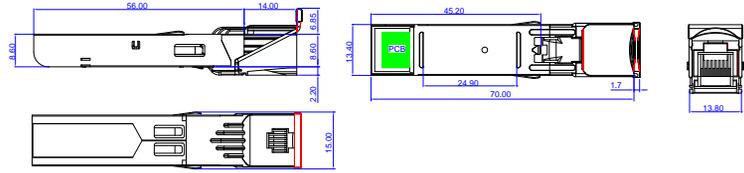
1.25G 1000Base-X

| 產品名稱 | 光纖線型式 | 傳輸距離 | 波長 (nm) | TX (dBm) (Min~Max) | RX Sensitivity (dBm) | 最大功率 (dB) | Saturation (dBm) | 工作溫度 |
|-----------------|-------|------|---------------|--------------------|----------------------|-----------|------------------|----------|
| ISFP-M7000-85 | MM | 550m | 850 | -9.5~-4 | -17 | 7.5 | -3 | -10~70°C |
| ISFP-M7002-31 | MM | 2km | 1310 | -9~-1 | -19 | 10 | -1 | -10~70°C |
| ISFP-S7020-31 | SM | 20km | 1310 | -8~-2 | -23 | 15 | -1 | -10~70°C |
| ISFP-S7040-31 | SM | 40km | 1310 | -2~3 | -23 | 21 | -3 | -10~70°C |
| ISFP-S7080-55 | SM | 80km | 1550 | 0~5 | -24 | 24 | -3 | -10~70°C |
| ISFP-S7020-WA | SM | 20km | T1310 / R1550 | -8~-2 | -23 | 15 | -2 | -10~70°C |
| ISFP-S7020-WB | SM | 20km | T1550 / R1310 | -8~-2 | -23 | 15 | -2 | -10~70°C |
| ISFP-S7040-WA | SM | 40km | T1310 / R1550 | -3~-2 | -23 | 20 | -1 | -10~70°C |
| ISFP-S7040-WB | SM | 40km | T1550 / R1310 | -3~-2 | -23 | 20 | -1 | -10~70°C |
| ISFP-M7000-85-E | MM | 550m | 850 | -9.5~-4 | -17 | 7.5 | -3 | -40~85°C |
| ISFP-M7002-31-E | MM | 2km | 1310 | -9~-1 | -19 | 10 | -1 | -40~85°C |
| ISFP-S7020-31-E | SM | 20km | 1310 | -8~-2 | -23 | 15 | -1 | -40~85°C |
| ISFP-S7040-31-E | SM | 40km | 1310 | -2~3 | -23 | 21 | -3 | -40~85°C |
| ISFP-S7080-55-E | SM | 80km | 1550 | 0~5 | -24 | 24 | -3 | -40~85°C |
| ISFP-S7020-WA-E | SM | 20km | T1310 / R1550 | -8~-2 | -23 | 15 | -2 | -40~85°C |
| ISFP-S7020-WB-E | SM | 20km | T1550 / R1310 | -8~-2 | -23 | 15 | -2 | -40~85°C |
| ISFP-S7040-WA-E | SM | 40km | T1310 / R1550 | -3~-2 | -23 | 20 | -1 | -40~85°C |
| ISFP-S7040-WB-E | SM | 40km | T1550 / R1310 | -3~-2 | -23 | 20 | -1 | -40~85°C |

千兆乙太網路SFP收發器



Gigabit Copper



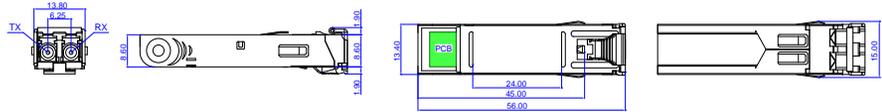
1.25G 1000Base-T

| 產品名稱 | 纜線型式 | 傳輸距離 | 波長 (nm) | Tx (dBm) (Min~Max) | RX Sensitivity (dBm) | 最大功率 (dB) | Saturation (dBm) | 工作溫度 |
|-----------------|--------|------|---------|-----------------------|-------------------------|--------------|---------------------|----------|
| ISFP-T7T00-00 | Copper | 100m | --- | --- | --- | --- | --- | -10~70°C |
| ISFP-T7T00-00-E | Copper | 100m | --- | --- | --- | --- | --- | -40~85°C |

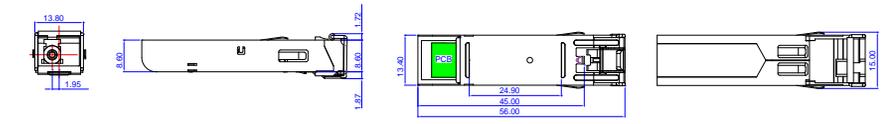
百兆乙太網路SFP收發器



Duplex LC



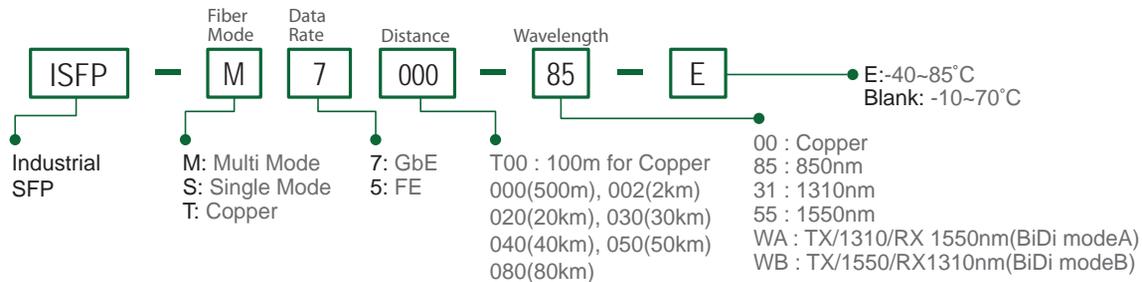
BiDi LC



155Mbps 100Base-FX

| 產品名稱 | 光纖線型式 | 傳輸距離 | 波長 (nm) | Tx (dBm) (Min~Max) | RX Sensitivity (dBm) | 最大功率 (dB) | Saturation (dBm) | 工作溫度 |
|-----------------|-------|------|---------------|-----------------------|-------------------------|--------------|---------------------|----------|
| ISFP-M5002-31 | MM | 2km | 1310 | -20~-14 | -32 | 12 | -8 | -10~70°C |
| ISFP-S5030-31 | SM | 30km | 1310 | -15~-8 | -34 | 19 | -5 | -10~70°C |
| ISFP-S5050-31 | SM | 50km | 1310 | -5~0 | -35 | 30 | -5 | -10~70°C |
| ISFP-S5020-WA | SM | 20km | T1310 / R1550 | -14~-8 | -32 | 18 | -3 | -10~70°C |
| ISFP-S5020-WB | SM | 20km | T1550 / R1310 | -14~-8 | -32 | 18 | -3 | -10~70°C |
| ISFP-S5040-WA | SM | 40KM | T1310 / R1550 | -8~0 | -34 | 26 | 0 | -10~70°C |
| ISFP-S5040-WB | SM | 40KM | T1550 / R1310 | -8~0 | -34 | 26 | 0 | -10~70°C |
| ISFP-M5002-31-E | MM | 2km | 1310 | -20~-14 | -32 | 12 | -8 | -40~85°C |
| ISFP-S5030-31-E | SM | 30km | 1310 | -15~-8 | -34 | 19 | -5 | -40~85°C |
| ISFP-S5050-31-E | SM | 50km | 1310 | -5~0 | -35 | 30 | -5 | -40~85°C |
| ISFP-S5020-WA-E | SM | 20km | T1310 / R1550 | -14~-8 | -32 | 18 | -3 | -40~85°C |
| ISFP-S5020-WB-E | SM | 20km | T1550 / R1310 | -14~-8 | -32 | 18 | -3 | -40~85°C |
| ISFP-S5040-WA-E | SM | 40KM | T1310 / R1550 | -8~0 | -34 | 26 | 0 | -40~85°C |
| ISFP-S5040-WB-E | SM | 40KM | T1550 / R1310 | -8~0 | -34 | 26 | 0 | -40~85°C |

SFP命名規則



訂購資訊

ISFP - □□□□□ - □□ - □

Example: ISFP - M7000 - 85 - E

