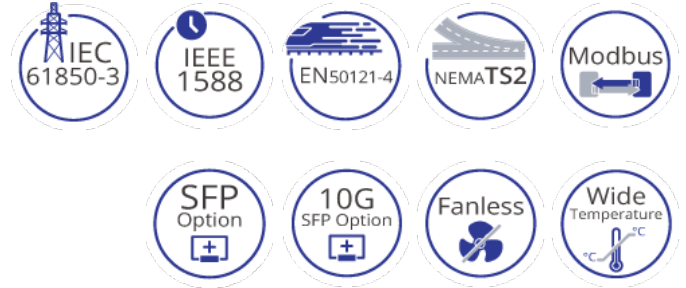


IG5 Rack 系列

IEC 61850-3/IEEE 1613 強固級網管型 24 埠 Gigabit + 4 埠 1G/10G SFP+ 乙太網路交換器



產品介紹

益網科技IG5 機架系列強固級網管型交換器，將第 3 層路由協定的優勢與強大的管理功能和增強的規格相結合。支援靜態路由、路由資訊協定 (RIP) v1/v2、OSPF 和虛擬路由器備援協定 (VRRP)，在高性能與高成本效益的解決方案中，提供出色的靈活性和安全性。

具備多種銅纜/光纖連接埠組合選項，提供有效的模組化。全部 24 連接埠皆支援 Gigabit 傳輸和 4 個支援 10G 速度的 SFP+ 埠。1U 機架高度，搭載益網科技的 Alpha-Ring 自愈技術，提供小於 1 毫秒的斷線回復時間，完美應用於無法忍受中斷的網路架構環境，促進更強的通訊網路。

IG5 機架系列符合 IEEE 1588v2 標準的精確時間通訊協定 (PTP)，利用網路封包及時間戳記進行網路時間同步。廣泛的第 2 層功能包括連接埠安全性、IGMP 偵聽、連接埠基礎的 VLAN、GARP、鏈路聚合控制和 ACL，支援 SSH、SNMP、RMON、HTTPS 和 SFTP 等多種安全存取方法，實現豐富的管理功能和操作。

強固耐用的設計可勝任 -40°C 至 75°C 的惡劣環境，處理最極端的應用操作，並符合 IEC61850 和 IEEE 1613 認證規範，在高電磁干擾的環境中始終保持穩定的性能，使其成為關鍵任務應用的理想選擇。

EtherWAN — "When Connectivity is Crucial."

產品亮點

+ 高頻寬和多介面配置

24 埠 Full Gigabit 全千兆高頻寬連接
4 個獨立 SFP+ 埠支援 1G/10G 光纖連接
所有連接埠均採雙速率設計，最高可達 10G
多種光纖/銅纜介面搭配選擇

+ 適用於不通風和惡劣環境的強固設計

-40 至 75°C (-40至167°F) 寬工作溫度範圍
操作符合 IEC60068-2-2 環境類型測試
高耐溫衝擊和高雜訊抗噪
通過 IEC 61850-3 和 IEEE 1613 標準測試

+ 第三層網管功能

靜態路由、RIP v1/v2, 和 OSPF
VRRP 虛擬路由器備援協定
廣播流量減輕

+ 支援時間戳記

所有連接埠皆支援 IEEE 1588v2 PTP 協議
支援 One-Step & Two-Step 對等延遲量測機制
可作為透明時鐘的網橋裝置運行

+ 靈活的機櫃安裝

雙側 LED 面板設計，支援前後安裝
簡潔易讀的連結狀態顯示
方便的佈線管理

+ 服務支援

提供技術支援
免費韌體升級和通知
有限終身保固

影片介紹

IG5 Series

IEC 61850-3/IEEE 1613 Lite L3 Hardened Managed 24-port Gigabit and 4-port 1G/10G SFP+ Ethernet Switch



- IEEE 1588
- IEEC 61850-3
- NEW-TS2
- EN50174

IG5 Series

IEC 61850-3/IEEE 1613 Lite L3 Hardened Managed 24-port Gigabit and 4-port 1G/10G SFP+ Ethernet Switch



- Precision time protocol
- Up stream up to 10G
- LED dual display
- Flexible port combinations
- DnA supportive




軟體功能

+ Interface

CLI, Telnet, Web GUI

+ Management

Firmware Upgrade
Configuration Backup
DHCP Server/Client
RMON (Remote Monitoring)
Port Mirroring
NTP (Network Time Protocol) Synchronization
LLDP (Link Layer Discovery Protocol)
IPv4/IPv6
SNMP v1/v2c/v3.
Modbus

+ Security

MAC Address Filtering
Enable/Disable Port
Storm Control
System Logging
IEEE 802.1x LAN Access Control
Remote Authentication through RADIUS and TACACS+
Complex Password Support
Multi-user Login and Privileged Access Management
SSH for CLI and Telnet Security
SSL and HTTPS for Web Security
ACL (Access Control List, up to 4096 Entries)

+ Quality of Service (QoS)

Priority Queues: 8 Queues Per Port
Traffic Classification Based on IEEE 802.1p CoS (Cost of Service), DSCP (Differentiated Services Code Point), WRR (Weighted Round Robin), and Strict Mode
Rate Limiting (Ingress/Egress)

+ Layer 2 Features

Auto-negotiation for Port Speed and Duplex
Flow Control
IEEE 802.3x full duplex mode
Back-pressure half duplex mode

Redundant Protocols
IEEE 802.1D STP
IEEE 802.1w RSTP
IEEE 802.1s MSTP
EtherWAN's Alpha-Ring network fault recovery

VLANs
IEEE 802.1Q Tag VLANs
GVRP
GMRP

Link Aggregation
Static Trunk (4 groups)
IEEE 802.3ad LACP

IGMP Snooping v1/v2/v3

+ Layer 3 Features

IP Packet Routing
Maximum number of routes in hardware: 64 entries
Static Routing
RIP v1/v2
OSPF v2

Routing Redundancy
VRRPv2

+ Software Properties and Performance

Switching Fabric
128Gbps

Forwarding Rate
95.23Mpps

Max VLANs
256 (4096 VID)

Jumbo Frame Size
9KB

MAC Table Size
16K

Packet Buffer Memory
12M bits

硬體規格

+ Interface

Ethernet

10/100/1000BASE-T(X): 0, 8, 16 or 24 ports

100/1000BASE SFP: 0, 8, 16 or 24 ports

1G/10G SFP+: 4 ports

Console

1 x RJ45

Digital Input

2 x Digital Input

Wet Contact: 0-3V for State 0; 13-30V for State 1;

Max input current: 8mA

Dry Contact: Logic Level 1–Close to GND; Logic Level 0–Open

Alarm Contact

2 x Relay output, current capacity

0.6A/30VDC

LED Indicators

Per Unit: Power 1, (Single Power models)

Power 2 (Dual Power models) (Green)

Per Port: Link/Activity (Green)

Per Port: Alarm (Red)

+ Technology

Standards

IEEE 802.3 10BASE-T

IEEE 802.3u 100BASE-TX/100BASE-FX

IEEE 802.3ab 1000BASE-T

IEEE 802.3ae 10Gigabit Ethernet

IEEE 802.3ad link aggregation control

IEEE 802.3z 1000BASE-SX/1000BASE-LX

IEEE 802.3x full duplex and flow control

IEEE 802.1D STP

IEEE 802.1p QoS

IEEE 802.1Q Tag VLANs

IEEE 802.1s MSTP

IEEE 802.1w RSTP

IEEE 802.1x PNAC

IEEE 802.1ab LLDP

Forward/Filtering Rate

14,880pps for 10Mbps

148,810pps for 100Mbps

1,488,100pps for 1000Mbps

14,881,000pps for 10Gbps

Processing Type

Store-and-forward

Auto-negotiation

Half-duplex back-pressure and full-duplex flow control
Auto MDI/MDIX

System Memory
2Gb DDR3 SDRAM

Flash Storage
1Gb

+ Power

Input
Dual Power
FTR: (Terminal Block)
24VDC to 48VDC (Nominal)
18 - 60VDC (Operational)
FWR: (Terminal Block)
100 - 250VDC or 100 - 240VAC (Nominal)
88 - 300VDC or 88 - 264VAC (Operational)
RCR: (AC Inlet)
100 - 240VAC

Single Power
FWS: (Terminal Block)
100 - 250VDC or 100 - 240VAC (Nominal)
88 - 300VDC or 88 - 264VAC (Operational)
RCS: (AC Inlet)
100 - 240VAC

Power Consumption
50W max.

Protection
Reverse Polarity Protection

+ Physical

Casing Material
Metal

IP Rating
IP40

Dimensions
442 x 325 x 44mm (W x D x H)
17.4" x 12.8" x 1.73"

Weight
4.6kg (10.14lbs) / 4.0kg (8.82lbs)

Installation Type
Rack mounting

+ Environmental

Operating Temp.
-40 to 75°C (-40 to 167°F)
(-40°C to 85°C for IEC 60068-2-2 Environmental 16 hours)

Storage Temp.
-45 to 85°C (-49 to 185°F)

Relative Humidity
5% to 95% (non-condensing)

MTBF
446,556 hours

+ Regulatory

ISO
Manufactured in ISO-9001 facility

EMI
FCC Part 15B Class A
VCCI Class A
EN 61000-6-4

EMS
EN 61000-6-2
EN 61000-4-2 (ESD)
EN 61000-4-3 (Radiated RFI)
EN 61000-4-4 (Burst)
EN 61000-4-5 (Surge)
EN 61000-4-6 (Induced RFI)
EN 61000-4-8 (Magnetic field)

Safety
UL 62368-1

Vibration
IEC 60068-2-6

Shock
IEC 60068-2-27

Free Fall
IEC 60068-2-31

Industrial
EN 50121-4

Power Substation
IEC 61850-3/IEEE 1613

+ Warranty

Length
Limited Lifetime

Details
www.etherwan.com/support/warranty-policy

+ What's Included

Device
Ethernet Switch

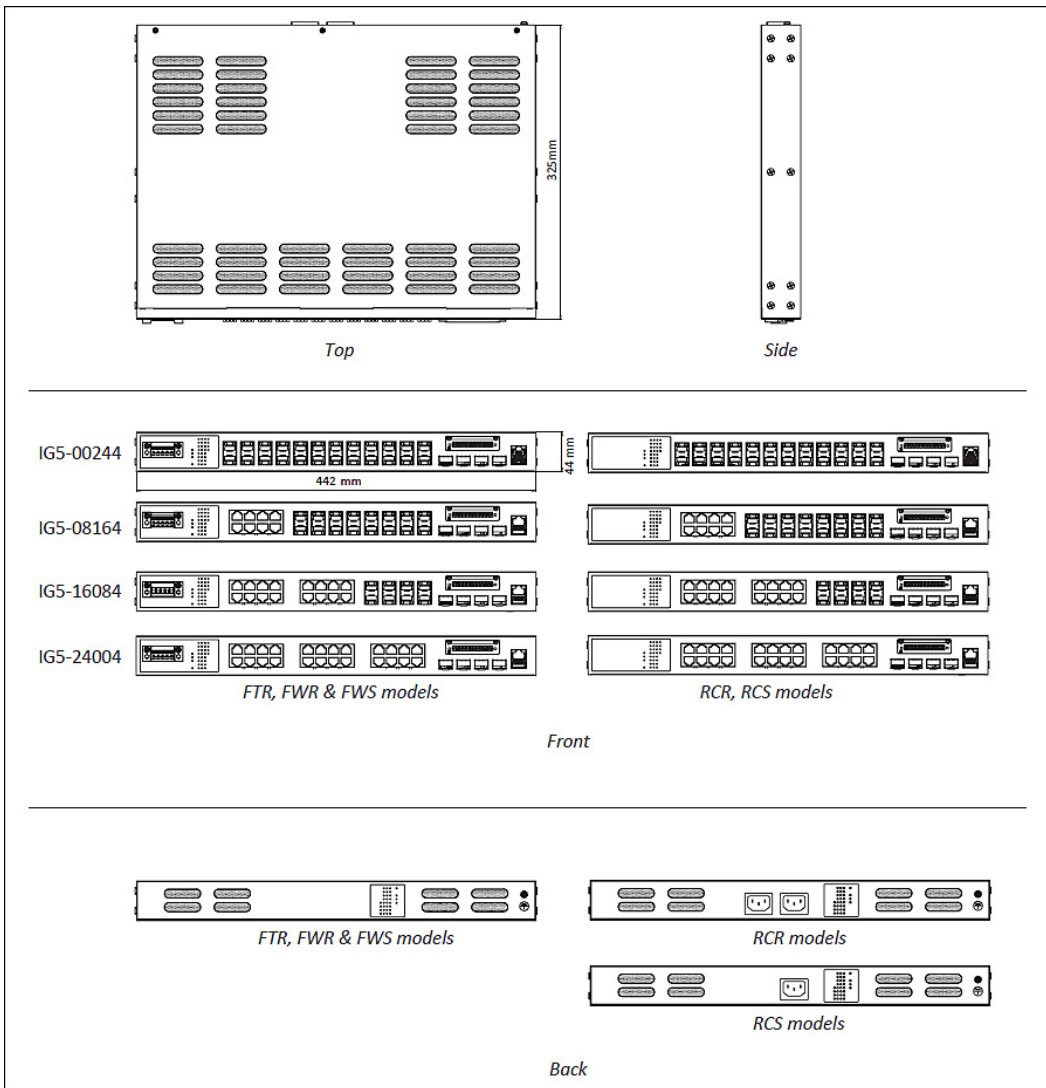
Cables
1 Console Cable

Installation
Mounting brackets, screws

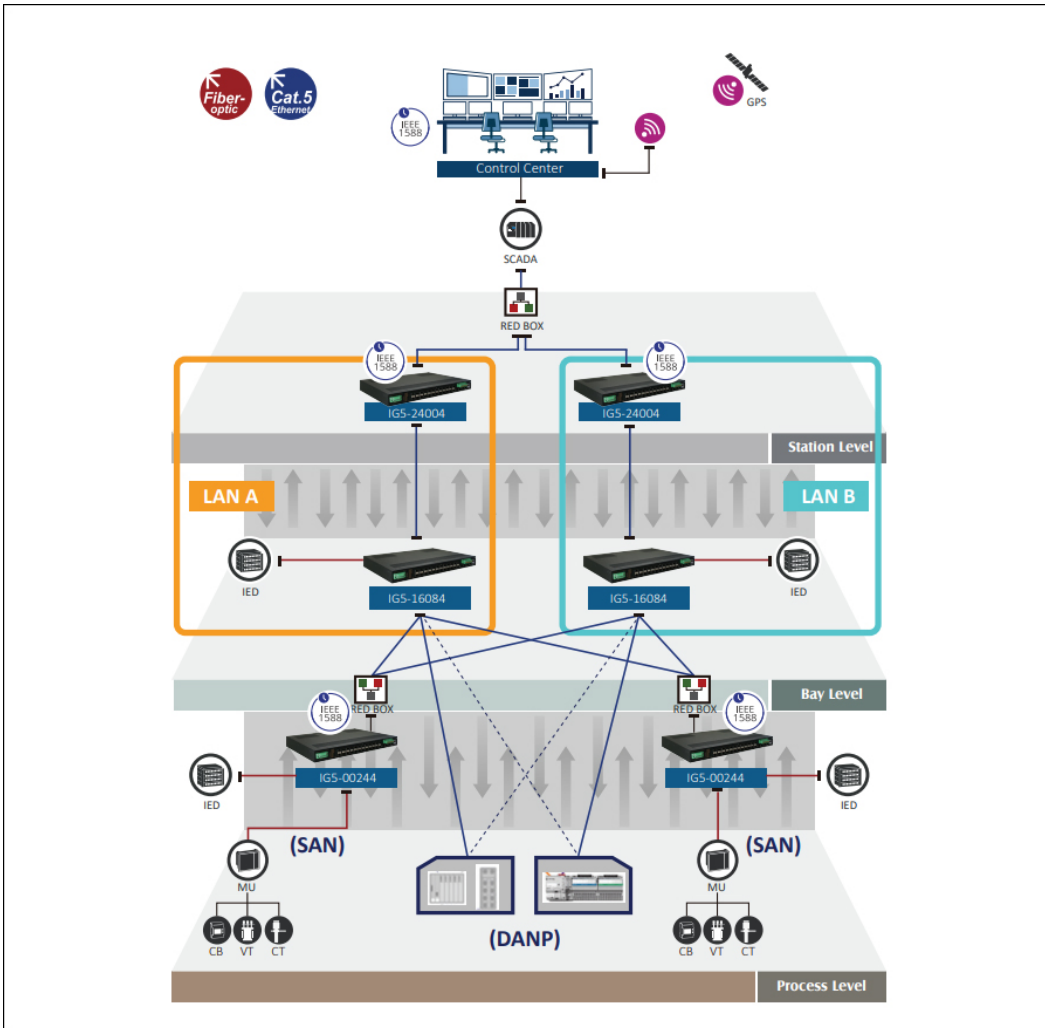
Documentation
Quick Install Guide

Power
1 AC Power Cord (RCS models)
2 AC Power Cord (RCR models)

產品尺寸圖

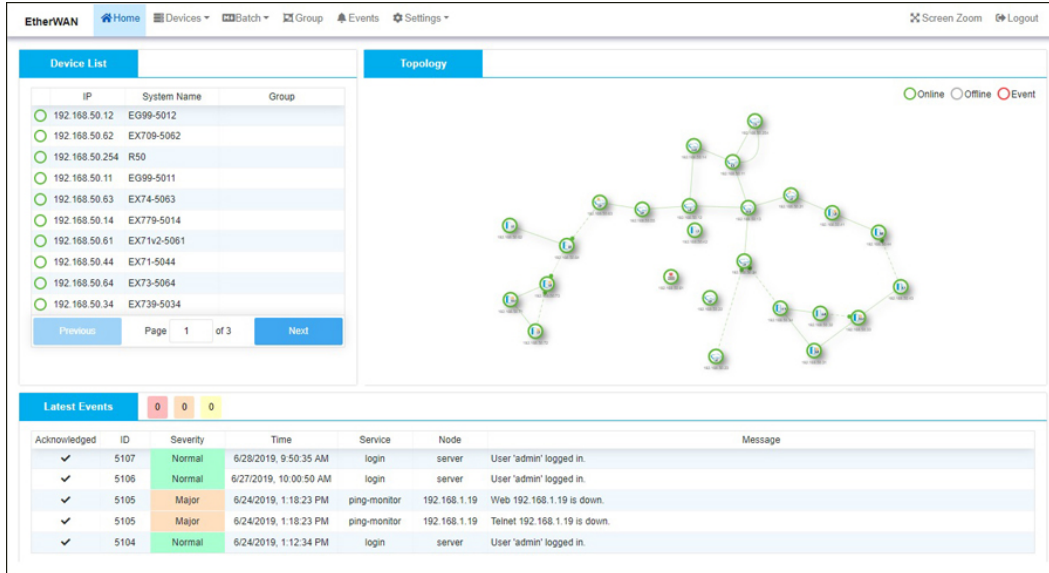


應用圖



軟體工具

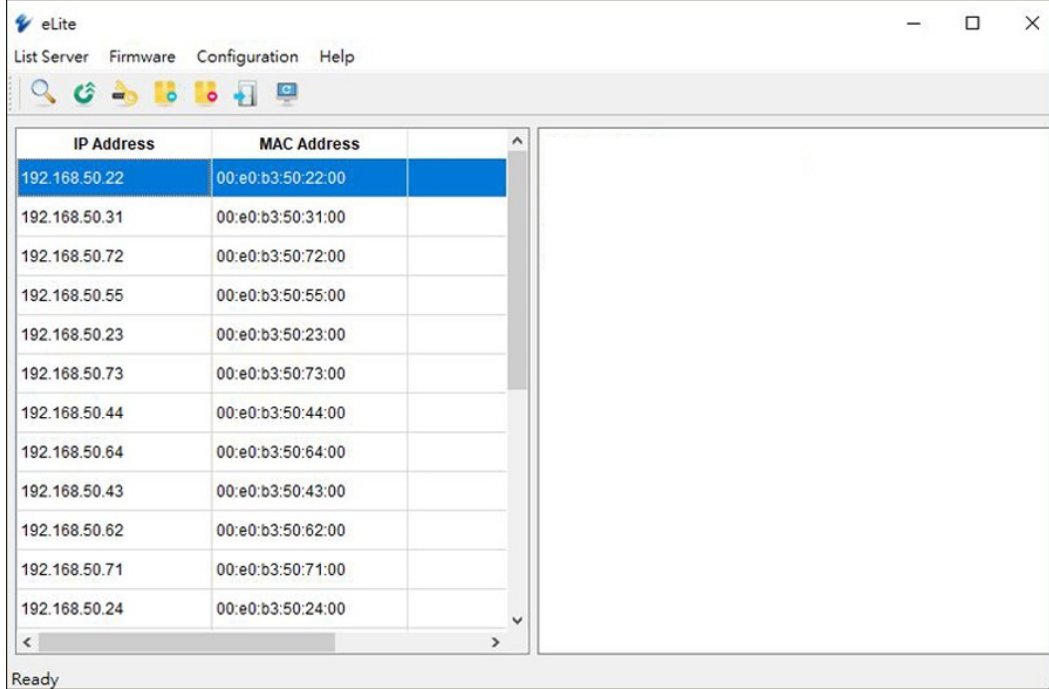
網路管理 eVue™ 網絡配置和監控工具
 網路探索 eLite™ 網絡偵測和IP 配置工具



The screenshot shows the EtherWAN web interface. On the left, there is a 'Device List' table with columns for IP, System Name, and Group. On the right, there is a 'Topology' diagram showing a network of interconnected devices. Below these, there is a 'Latest Events' section with a table of system events.

| IP | System Name | Group |
|----------------|-------------|-------|
| 192.168.50.12 | EG99-5012 | |
| 192.168.50.62 | EX709-5062 | |
| 192.168.50.254 | R50 | |
| 192.168.50.11 | EG99-5011 | |
| 192.168.50.63 | EX74-5063 | |
| 192.168.50.14 | EX779-5014 | |
| 192.168.50.61 | EX71v2-5061 | |
| 192.168.50.44 | EX71-5044 | |
| 192.168.50.64 | EX73-5064 | |
| 192.168.50.34 | EX739-5034 | |

| Acknowledged | ID | Severity | Time | Service | Node | Message |
|--------------|------|----------|------------------------|--------------|--------------|------------------------------|
| ✓ | 5107 | Normal | 6/28/2019, 9:50:35 AM | login | server | User 'admin' logged in. |
| ✓ | 5106 | Normal | 6/27/2019, 10:00:50 AM | login | server | User 'admin' logged in. |
| ✓ | 5105 | Major | 6/24/2019, 1:18:23 PM | ping-monitor | 192.168.1.19 | Web 192.168.1.19 is down. |
| ✓ | 5105 | Major | 6/24/2019, 1:18:23 PM | ping-monitor | 192.168.1.19 | Telnet 192.168.1.19 is down. |
| ✓ | 5104 | Normal | 6/24/2019, 1:12:34 PM | login | server | User 'admin' logged in. |



The screenshot shows the eLite application window. It has a menu bar with 'List Server', 'Firmware', 'Configuration', and 'Help'. Below the menu is a toolbar with various icons. The main area contains a table with IP addresses and MAC addresses.

| IP Address | MAC Address |
|---------------|-------------------|
| 192.168.50.22 | 00:e0:b3:50:22:00 |
| 192.168.50.31 | 00:e0:b3:50:31:00 |
| 192.168.50.72 | 00:e0:b3:50:72:00 |
| 192.168.50.55 | 00:e0:b3:50:55:00 |
| 192.168.50.23 | 00:e0:b3:50:23:00 |
| 192.168.50.73 | 00:e0:b3:50:73:00 |
| 192.168.50.44 | 00:e0:b3:50:44:00 |
| 192.168.50.64 | 00:e0:b3:50:64:00 |
| 192.168.50.43 | 00:e0:b3:50:43:00 |
| 192.168.50.62 | 00:e0:b3:50:62:00 |
| 192.168.50.71 | 00:e0:b3:50:71:00 |
| 192.168.50.24 | 00:e0:b3:50:24:00 |

訂購型號

+ Model

| | |
|--------------|---|
| IG5-24004YYY | 24 埠 10/100/1000BASE-T(X) + 4 埠 1G/10G SFP+ 網管型乙太網路交換器 |
| IG5-16084YYY | 16 埠 10/100/1000BASE-T(X) + 8 埠 100/1000BASE SFP + 4 埠 1G/10G SFP+ 網管型乙太網路交換器 |
| IG5-08164YYY | 8 埠 10/100/1000BASE-T(X) + 16 埠 100/1000BASE SFP + 4 埠 1G/10G SFP+網管型乙太網路交換器 |
| IG5-00244YYY | 24 埠 100/1000BASE SFP + 4- 埠 1G/10G SFP+ 網管型乙太網路交換器 |

+ Power Input & Operation Temp. (YYY)

| | |
|-----|---|
| FTR | 24VDC 到 48VDC 雙電源配置 (接線端子台), 強固級別操作溫度 (-40 到 75°C) |
| FWR | 88 到 300VDC 或 100-240VAC 雙電源配置 (接線端子台), 強固級別操作溫度 (-40 到 75°C) |
| RCR | 100 到 240VAC 雙電源配置 (AC 電源插座), 強固級別操作溫度 (-40 到 75°C) |
| FWS | 88 到 300VDC 或 100-240VAC 單電源配置 (接線端子台), 強固級別操作溫度 (-40 到 75°C) |
| RCS | 100 到 240VAC 單電源配置 (AC 電源插座), 強固級別操作溫度 (-40 到 75°C) |

+ 配件選購

| Part Number | Speed | InfoMode | Distance | Operating Temperature | Wavelength | DDM |
|-------------------|----------|----------|-----------|-----------------------|------------|-----|
| EX-0155NSP-MB2L-A | 100Mbps | Multi | 2km | -40 to 85°C | 1310nm | - |
| SFPMIS20M | 100Mbps | Single | 20km | -40 to 85°C | 1310nm | ✓ |
| SFPGIM5AM | 1000Mbps | Multi | 275m/550m | -40 to 85°C | 850nm | ✓ |
| SFPGIM02M | 1000Mbps | Multi | 2km | -40 to 85°C | 1310nm | ✓ |
| SFPGIS10M | 1000Mbps | Single | 10km | -40 to 85°C | 1310nm | ✓ |
| SFPTIM3AM | 10Gbps | Multi | 300m | -40 to 85°C | 850nm | ✓ |
| SFPTIM3AM | 10Gbps | Single | 10km | -40 to 85°C | 1310nm | ✓ |

+ 更多配件選擇, 請參照下列網址:

| | |
|--------------------|--|
| 強固級 100BASE SFP 模組 | www.etherwan.com/tw/products/sfp-fiber-transceiver |
| 強固級 Gigabit SFP 模組 | www.etherwan.com/tw/products/sfp-fiber-transceiver |
| 強固級 10G SFP+ 模組 | www.etherwan.com/tw/products/sfp-fiber-transceiver |
| DIN-Rail 導軌式電源供應器 | www.etherwan.com/tw/products/din-rail-power-supply |

