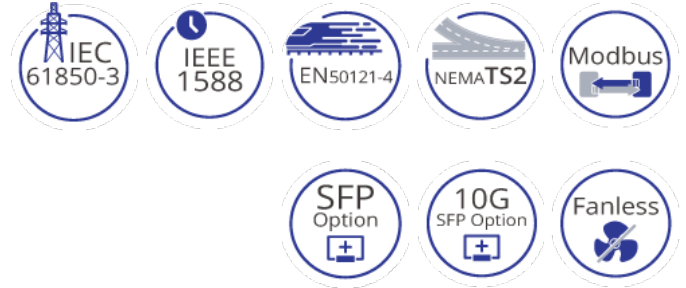


# IG5 L Rack 系列

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



## 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  
高達 128Gbps 交換容量的全雙工運行  
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

### + 專為工業應用環境的設計

-10 至 60°C (14 至 140°F) 工作溫度範圍  
高耐溫衝擊和高雜訊抗噪  
高靜電/突波防護能力  
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

技術支援  
免費韌體升級和通知  
有限終身保固

## 產品介紹

益網科技 IG5 L 機架系列工業級網管型交換器，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 L 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。

堅實可靠的設計可滿足 -10°C 至 60°C 範圍內的絕大多數工業應用操作，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."

## 影片介紹



## 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) (Green)

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  
FTRL: (Terminal Block)  
24VDC to 48VDC (Nominal)  
18 - 60VDC (Operational)  
FWRL: (Terminal Block)  
100 - 250VDC or 100 - 240VAC (Nominal)  
88 - 300VDC or 88 - 264VAC (Operational)  
RCRL: (AC Inlet)  
100 - 240VAC

Single Power  
FWSL: (Terminal Block)  
100 - 250VDC or 100 - 240VAC (Nominal)  
88 - 300VDC or 88 - 264VAC (Operational)  
RCSL: (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.  
-10 to 60°C (14 to 140°F)

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

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

MTBF  
644,723 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](http://www.etherwan.com/support/warranty-policy)

## + What's Included

**Device**  
Ethernet Switch

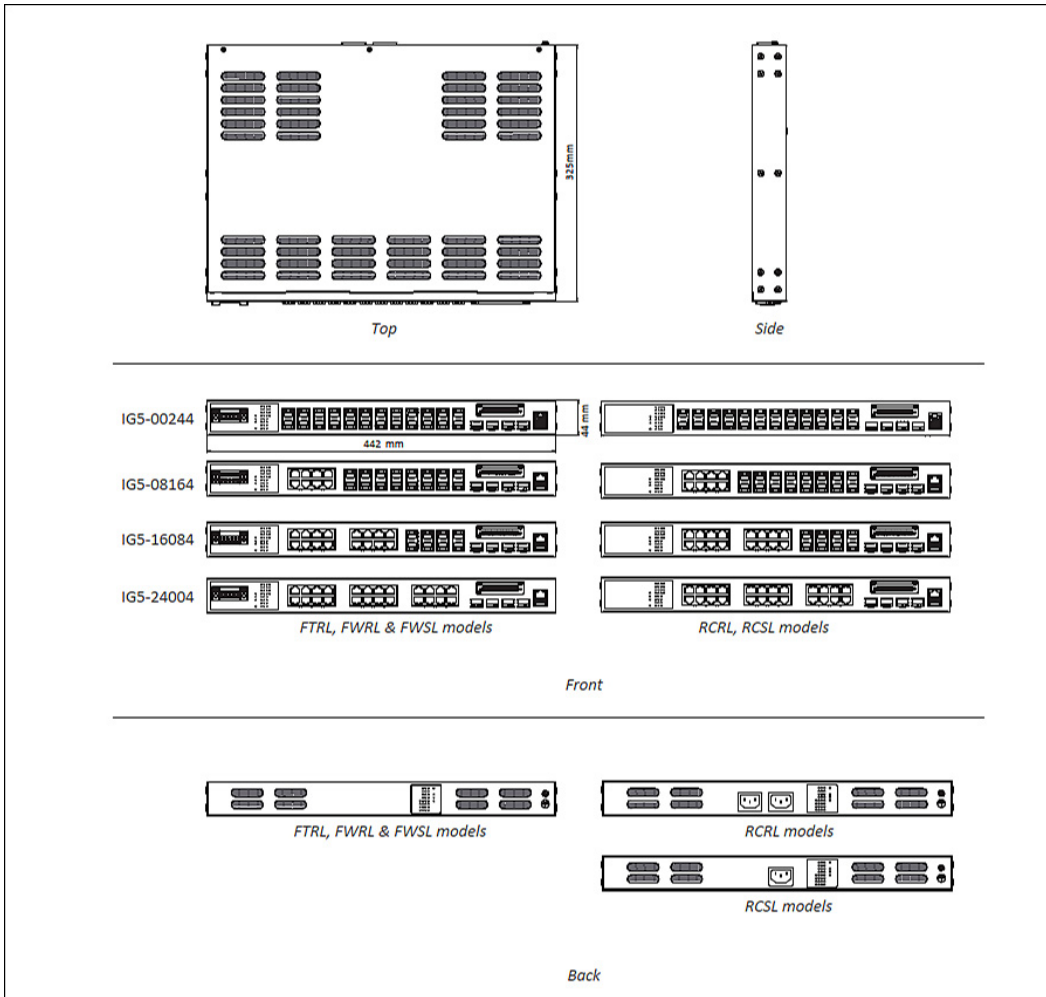
**Cables**  
1 Console Cable

**Installation**  
Mounting brackets, screws

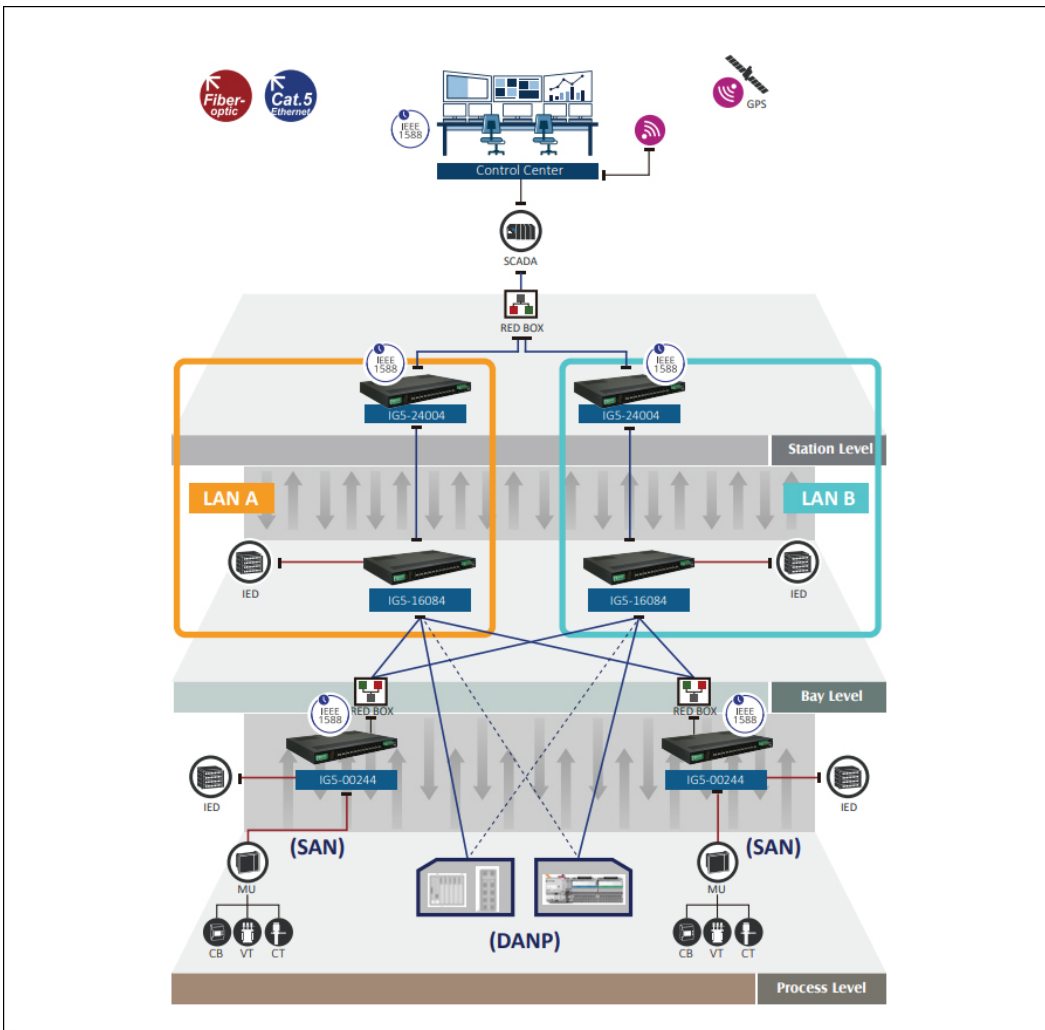
**Documentation**  
Quick Install Guide

**Power**  
1 AC Power Cord (RCSL models)  
2 AC Power Cord (RCRL models)

# 產品尺寸



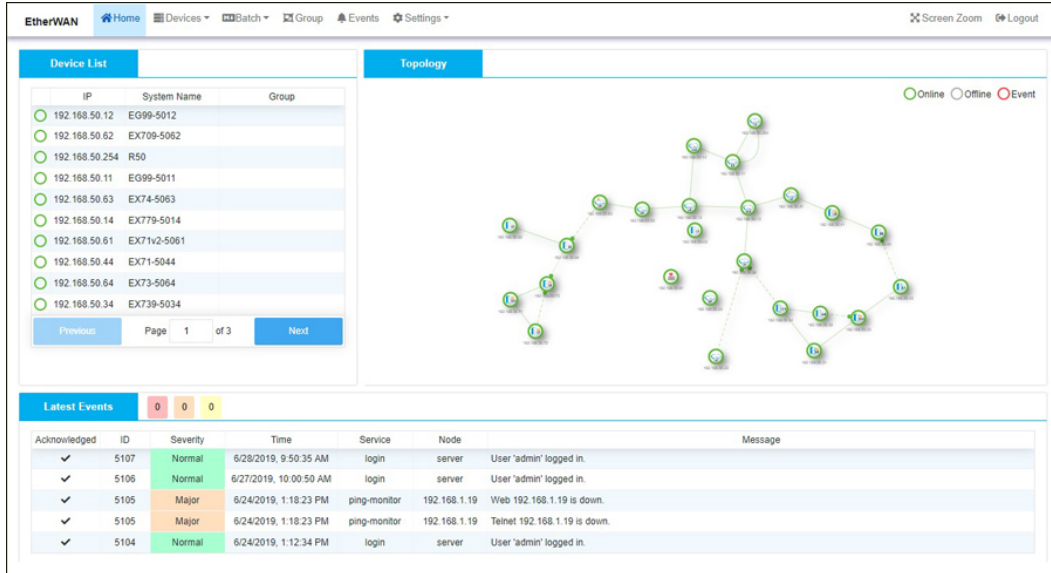
# 應用圖





# 軟體工具

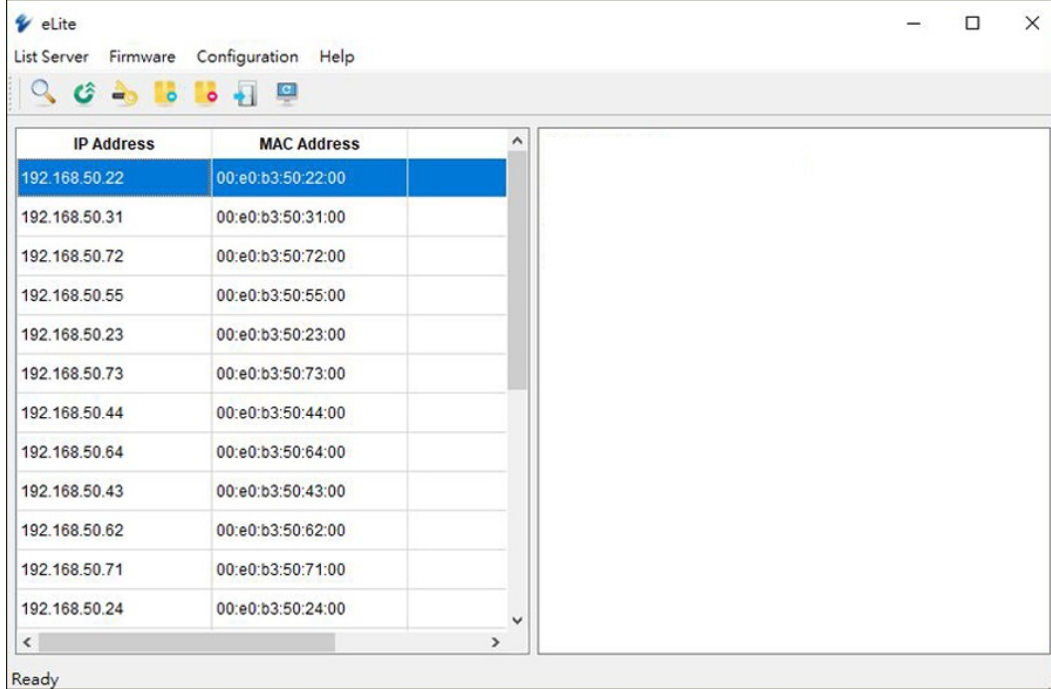
網路管理 eVue™ 網路配置和監控工具  
 網路探索 eLite™ 網路偵測和 IP 配置工具



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 nodes. 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

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

### + Power Input Interface (YYYY)

FTRL	24VDC 到 48VDC 雙電源配置 (接線端子台), 工業等級操作溫度 (-10 到 60°C)
FWRL	88 到 300VDC 或 100-240VAC 雙電源配置 (接線端子台), 工業等級操作溫度 (-10 到 60°C)
RCRL	100 到 240VAC 雙電源配置 (AC 電源插座), 工業等級操作溫度 (-10 到 60°C)
FWSL	88 到 300VDC 或 100-240VAC 單電源配置 (接線端子台), 工業等級操作溫度 (-10 到 60°C)
RCSL	100 到 240VAC 單電源配置 (AC 電源插座), 工業等級操作溫度 (-10 到 60°C)

### + 配件選購

Part Number	Speed	Info	Mode	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	<a href="http://www.etherwan.com/products/sfp-fiber-transceiver">www.etherwan.com/products/sfp-fiber-transceiver</a>
強固級 Gigabit SFP 模組	<a href="http://www.etherwan.com/products/sfp-fiber-transceiver">www.etherwan.com/products/sfp-fiber-transceiver</a>
強固級10 Gigabit SFP 模組	<a href="http://www.etherwan.com/products/sfp-fiber-transceiver">www.etherwan.com/products/sfp-fiber-transceiver</a>
DIN 導軌式電源供應器	<a href="http://www.etherwan.com/products/din-rail-power-supply">www.etherwan.com/products/din-rail-power-supply</a>

