IG5 L Rack 系列

IEC 61850-3/IEEE 1613 工業級網管型 24 埠 Gigabit + 4 埠 1G/2.5G/10G 乙太網路交換器



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 個支援高達 10G 速度的 SFP+ 埠。1U機架高度，搭載益網科技的Alpha-Ring自癒技術，提供小於15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。

IEC 62443-4-2 認證 — 為關鍵工業與基礎設施應用打造更強大的資安韌性與營運可靠性。

益網科技 - “ **連結，制勝的關鍵** “

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/2.5G/10G 光纖連接
高達 128Gbps 交換容量的全雙工運行
所有上行鏈路均採三速率設計，最高可達 10G
多種光纖/銅纜介面搭配選擇

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

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

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

第三層網管功能

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

服務支援

技術支援
免費韌體升級和通知
有限終身保固

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

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

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)

IPSG (IP Source guard)

DAI (Dynamic ARP Inspection)

DHCP Snooping

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 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/2.5G/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)

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

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

Regulatory

ISO

Manufactured in ISO-9001 facility

EMI

FCC Part 15B Class A

VCCI Class A

EN 61000-6-4

BSMI

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

Cybersecurity

IEC 62443-4-1

IEC 62443-4-2

Vibration

IEC 60068-2-6

Shock

IEC 60068-2-27

Free Fall

IEC 60068-2-31

Traffic

NEMA TS2

Railway

EN 50121-4

Power Substation

IEC 61850-3/IEEE 1613/IEC 60255-27

IEC 61850-90-4

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

Warranty

Length

Limited Lifetime

Details

www.etherwan.com/support/warranty-policy

What's Included

Device

Ethernet Switch

Cables

1 Console Cable

Installation

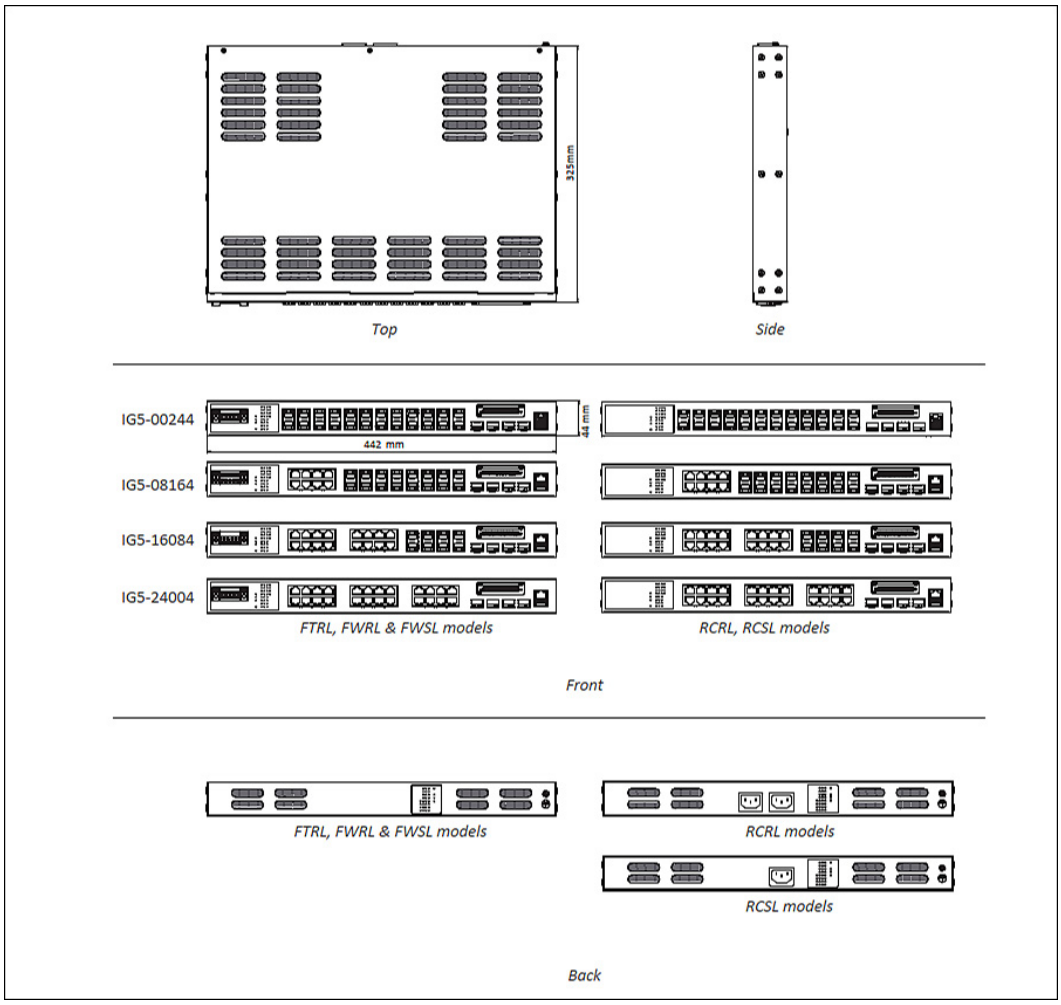
Mounting brackets, screws

Power

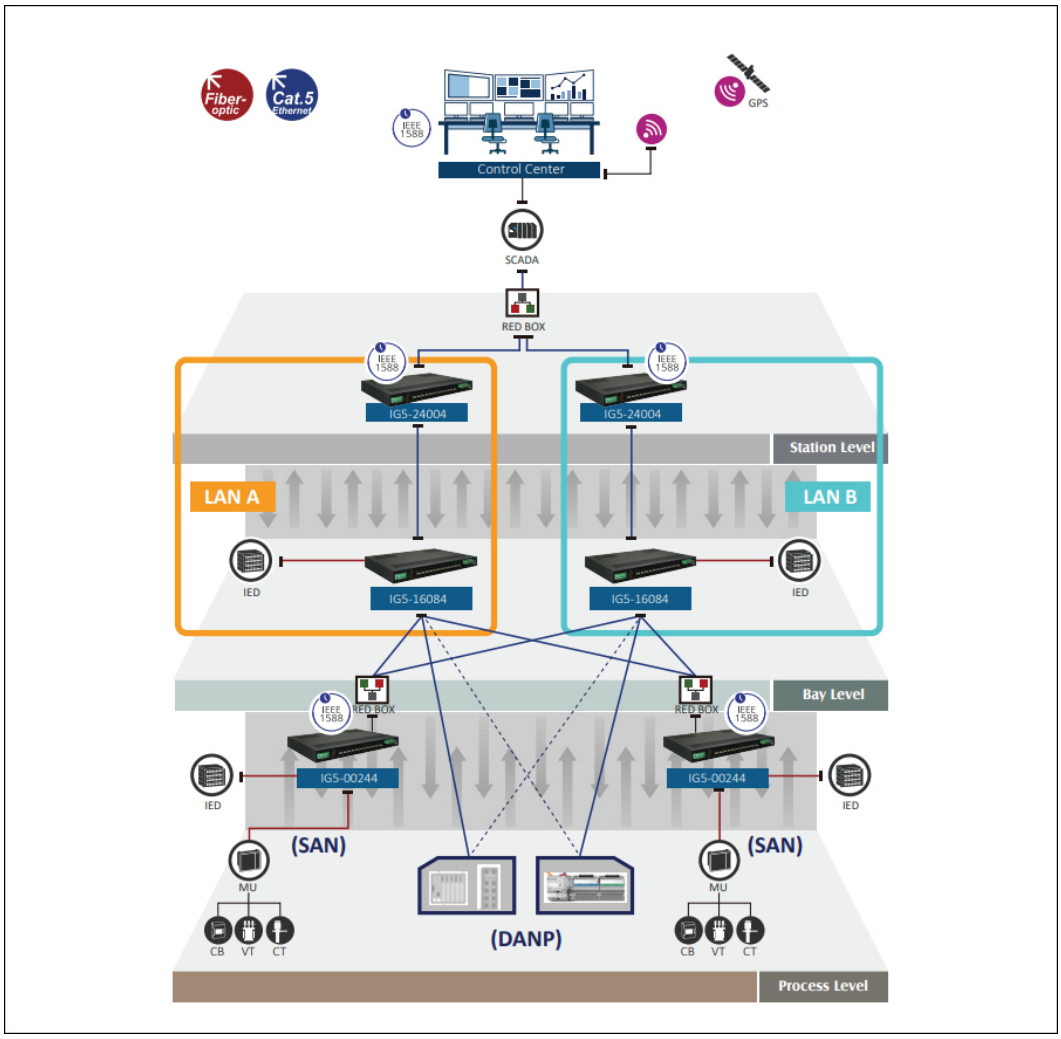
1 AC Power Cord (RCSL models)

2 AC Power Cord (RCRL models)

產品尺寸

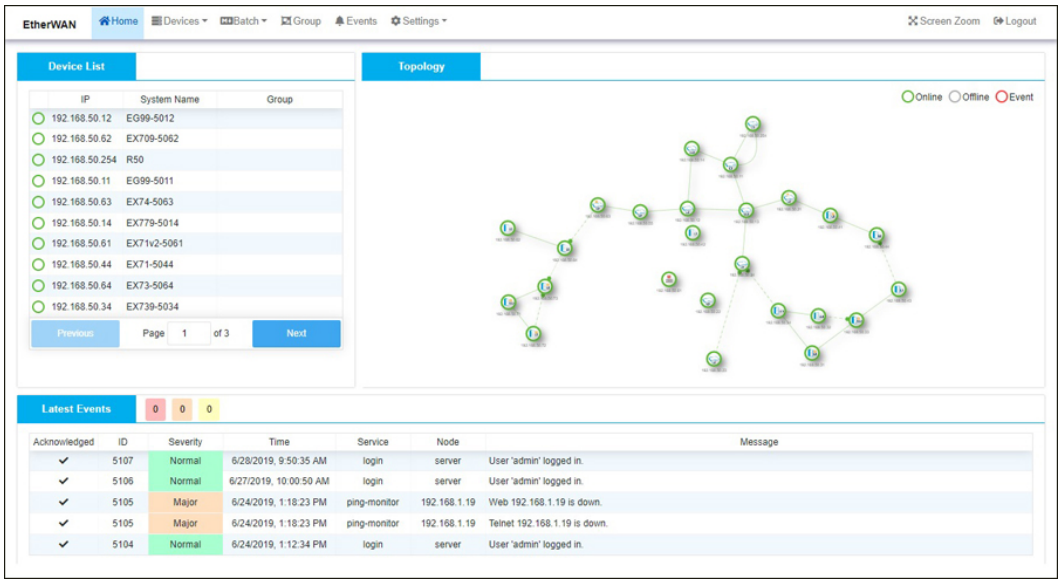

325mm
Top
Side
IG5-00244
IG5-08164
IG5-16084
IG5-24004
442 mm
44 mm
FTRL, FWRL & FWSL models
RCRL, RCSL models
Front
FTRL, FWRL & FWSL models
RCRL models
RCSL models
Back

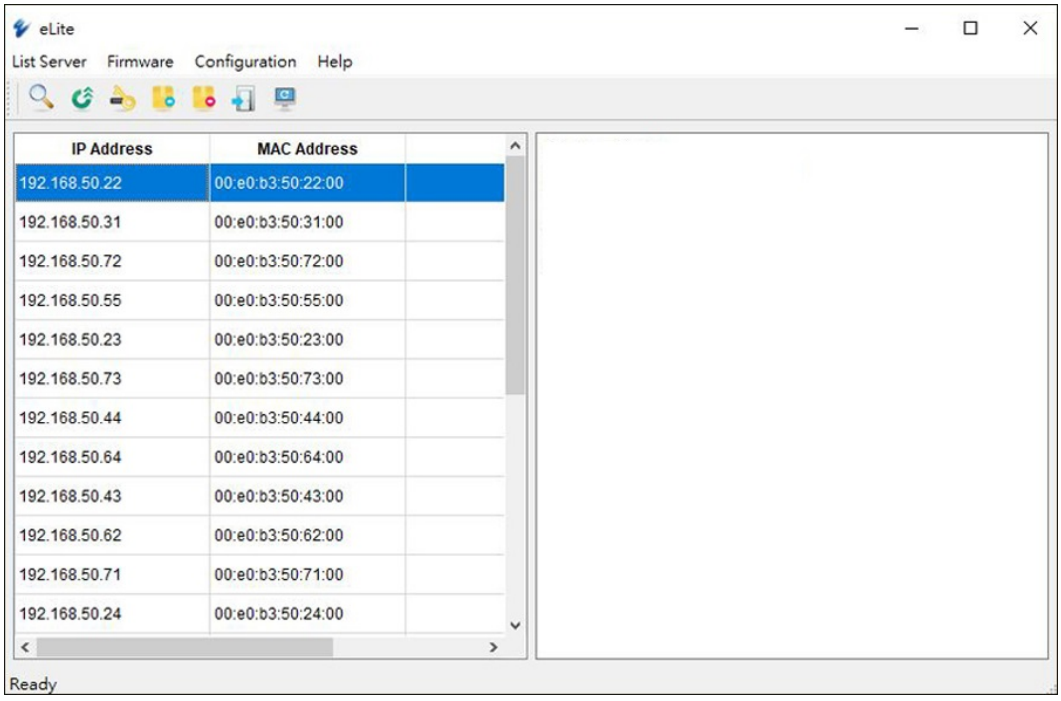
應用圖


Fiber-optic
Cat.5 Ethernet
GPS
IEEE 1588
Control Center
SCADA
RED BOX
IG5-24004
IG5-24004
Station Level
LAN A
LAN B
IED
IG5-16084
IG5-16084
IED
Bay Level
RED BOX
RED BOX
IG5-00244
IG5-00244
IED
IED
(SAN)
(SAN)
MU
MU
CB
VT
CT
CB
VT
CT
(DANP)
Process Level

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





訂購型號

Model

				
	IG5-24004YYYZ	**IG5-16084YYYZ**	**IG5-08164YYYZ**	**IG5-00244YYYZ**
10/100/1000BASE-T(X)	24	16	8	-
100/1000 BASE SFP	-	8	16	24
1G/2.5G/10G SFP+	4			
Network management	L3 Routing			
Digital Input / Output	2 sets			
	訂購諮詢	訂購諮詢	訂購諮詢	訂購諮詢

Power Input Interface (YYYZ)

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	✔

SFPTIS10M	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/products/sfp-fiber-transceiver
強固級 Gigabit SFP 模組	www.etherwan.com/products/sfp-fiber-transceiver
強固級10 Gigabit SFP 模組	www.etherwan.com/products/sfp-fiber-transceiver
DIN 導軌式電源供應器	www.etherwan.com/products/din-rail-power-supply

© EtherWAN Systems, Inc. All rights reserved. 20261013
EtherWAN is constantly developing and improving products. Specifications are subject to change without notice and without incurring any obligation.