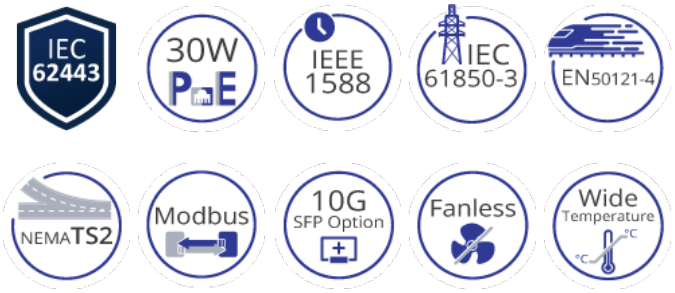
IG5 SV 系列

IEC 61850-3/IEEE 1613 強固級網管型 24 埠 Gigabit (8*PoE) + 4 埠 1G/2.5G/10G SFP+ 乙太網路交換器





產品介紹

IG5 SV 強固級網管型交換器在原有 IG5 Rack系列 的基礎上進一步升級，提供更加卓越的表現。IG5 SV 在 16埠 和 8埠 的多種連接埠組合中，新增了具備 **8個 IEEE 802.3af/at PoE 連接埠**的選項，每埠可提供高達30W的功率輸出，並搭配智慧控制器有效分配 **90W總功率預算**。**縮小20%的機身設計**、強固的IP40金屬機殼、與 **24 ~ 48VDC** 的輸入電壓，使得 **IG5 SV 強固級網管型交換器**能在空間有限的環境中靈活安裝，特別適合需要高電磁安全防護和網路供電配置的應用。

此外，IG5 SV交換器支持第二層管理功能和**第三層路由設置**，滿足大型網路環境對高效數據傳輸的需求。**內建數位I/O和繼電器控制埠**，擴充了偵測與告警系統，提供靈活多元的網路建構方案。**所有型號均符合 IEC 61850-90-4 GOOSE 訊息傳輸要求及 IEEE 1588v2 精確時間協定（PTP）**，確保電力系統的快速反應和高可靠性。IG5 SV **提供最大高達10G頻寬，並符合 IEC 61850-3、IEEE 1613 及 IEC 60255-27 標準**，具備高達 **5kV的脈衝保護**，是城市基礎設施、智慧交通、工業物聯網和智慧能源管理等關鍵應用的理想選擇。

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 埠支援 1G/2.5G/10G 光纖連接
128Gbps 全雙工交換容量
內建數位 I/O 控制埠銜接偵測、告警系統

PoE 功能

提供 8 個IEEE 802.3 af/at type 2 PoE 埠
每埠最大 30W 輸出, 總功率預算 90W
支援 PoE 看門狗 (PoE Watchdog) 監控功能

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

靈活的安裝

支援機架式和面板式安裝
整合式通訊狀態面板
便於電纜管理

支援變電站通訊傳輸與時間同步

符合IEC61850-90-4 GOOSE 與多播訊息傳輸
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

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
通過 IEC 60255-27 電氣保護安全測試

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)
IPSG (IP Source guard)
DAI (Dynamic ARP Inspection)
DHCP Snooping

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: 512 entries
Static Routing
RIP v1/v2
OSPF v2

Routing Redundancy

VRRPv2

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)

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) PoE: 8 ports (PoE models)

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

Config Backup

1 x USB (Type A Connector)

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 0.5A/48VDC

LED Indicators

Per Unit: Power 1, Power 2 (Green)

Link/Activity (Green)

Per Port:Alarm (Red)

PoE Port: PoE Status (Green)

Physical

Casing Material

Metal

IP Rating

IP40

Dimensions

442 x 267 x 44mm (W x D x H)
17.4" x 10.5" x 1.73"

Weight

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

Installation Type

Rack mounting / Panel 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

790,907 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 802.1D 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

EN 61000-3-2

EN 61000-3-3

EN 55032

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

Power

Input

24VDC to 48VDC (Nominal)

18 - 60VDC (Operational)

Redundant Power Inputs (Terminal Block)

Power Consumption

50W max. (Without PoE)

Protection

Reverse Polarity Protection

Overload Current Protection

PoE (Available for PoE models)

PoE Modes
- 802.3af/at Mode A: Pins 1/2(-), 3/6(+)

Power Output
- Ports 1-8: 15W Up to 30W/port
- Total Power Budget: 90W

Compliance
- IEEE 802.3af type 1, ≤15.4W PD devices
- IEEE 802.3at type 2, 30W PD devices.

Warranty

Length

Limited Lifetime

Details

www.etherwan.com/support/warranty-policy

What's Included

Device

Ethernet Switch

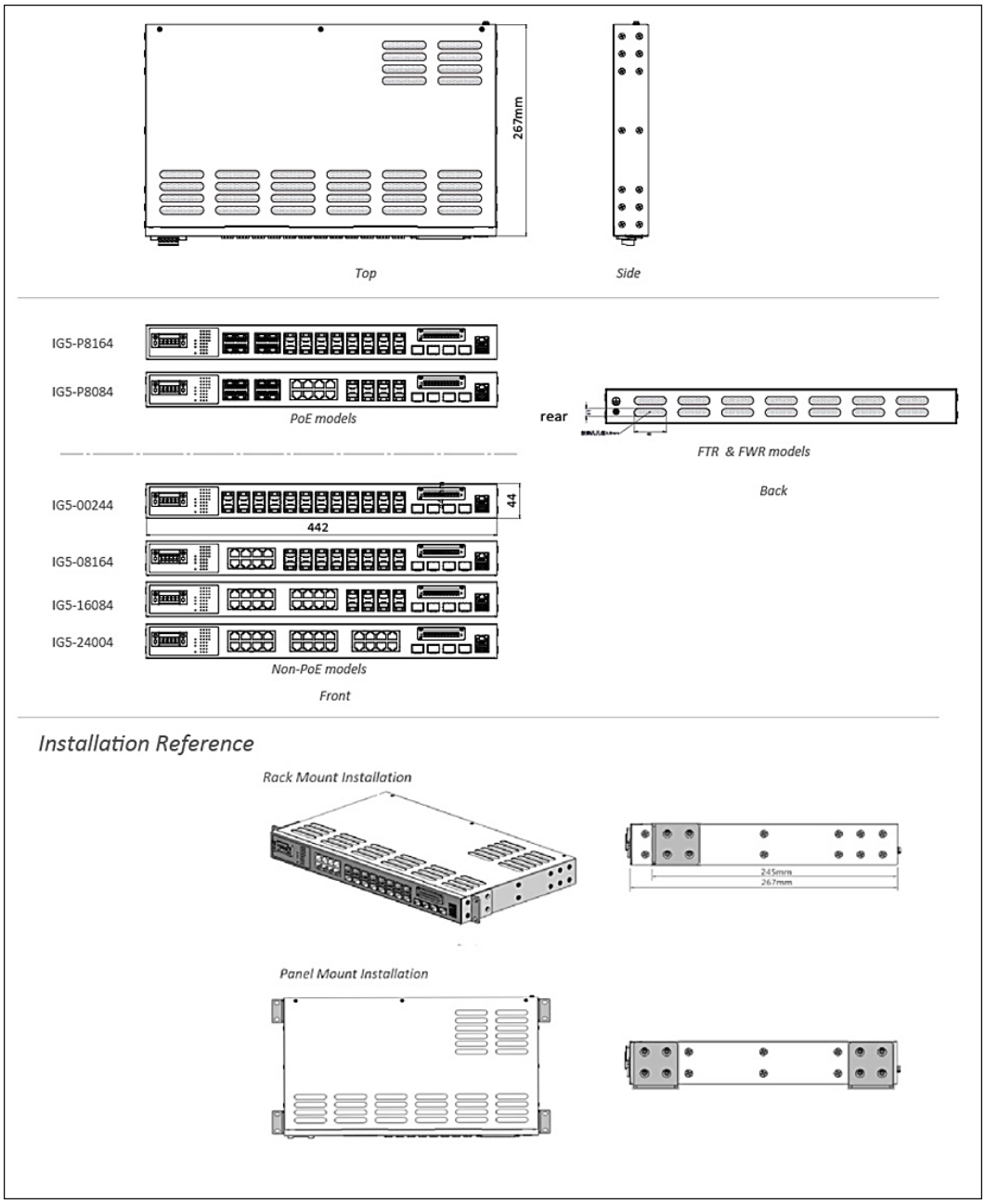
Cables

1 Console Cable

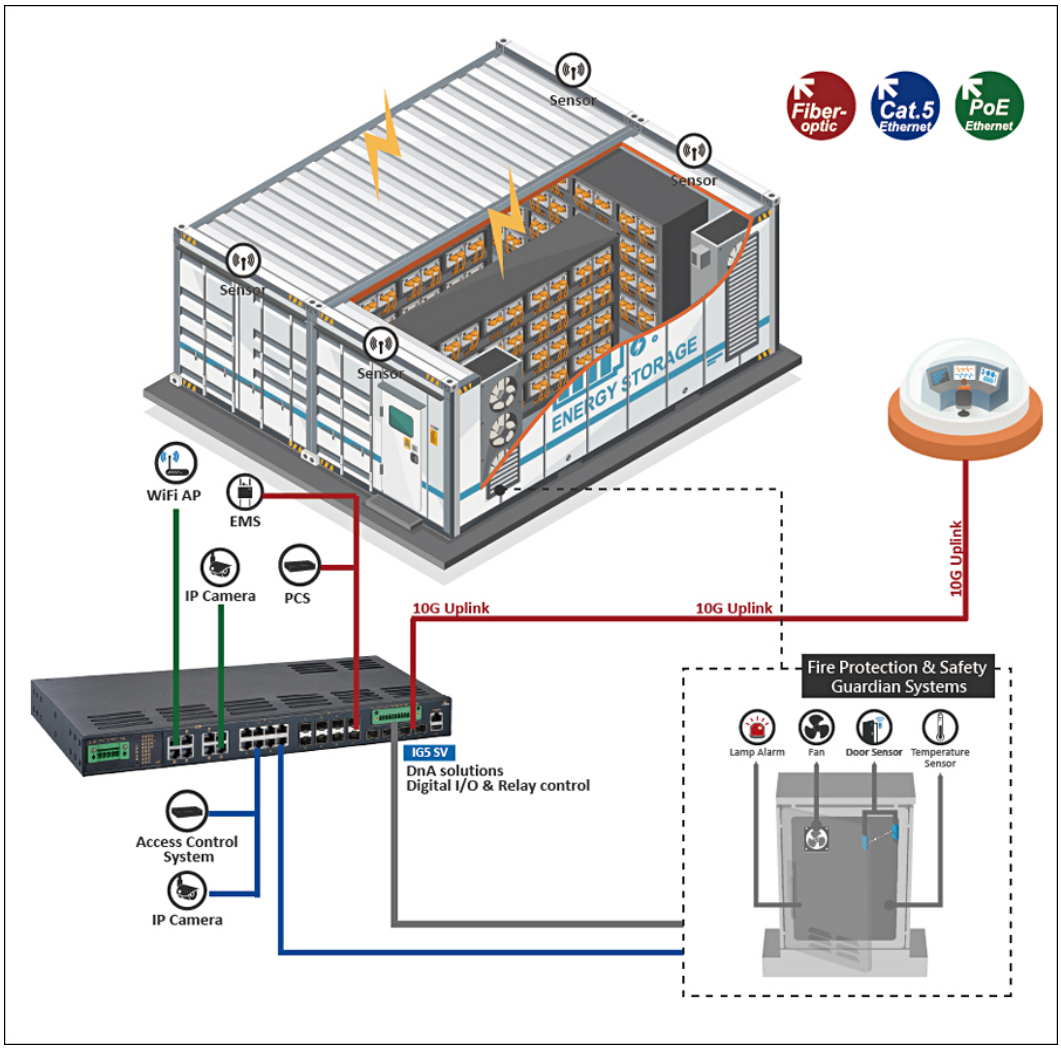
Installation

Mounting brackets, screws

產品尺寸圖

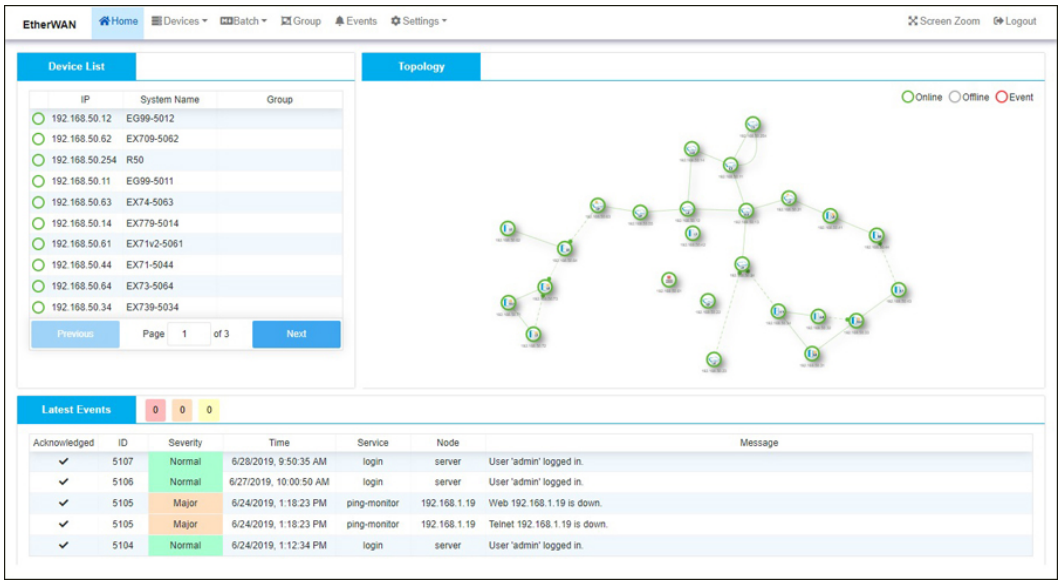

267mm
Top
Side
IG5-P8164
IG5-P8084
PoE models
rear
FTR & FWR models
Back
IG5-00244
442
44
IG5-08164
IG5-16084
IG5-24004
Non-PoE models
Front
Installation Reference
Rack Mount Installation
245mm
267mm
Panel Mount Installation

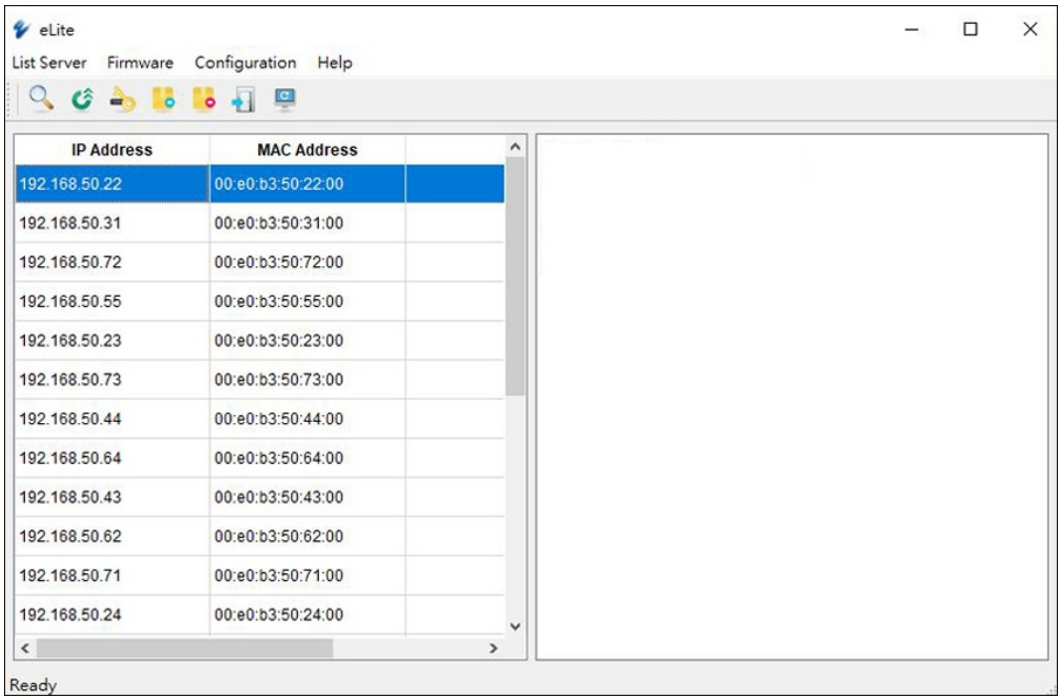
應用範例


Fiber-optic
Cat.5 Ethernet
PoE Ethernet
Sensor
Sensor
Sensor
Sensor
ENERGY STORAGE
WiFi AP
EMS
IP Camera
PCS
10G Uplink
10G Uplink
10G Uplink
IG5 SV
DnA solutions
Digital I/O & Relay control
Access Control System
IP Camera
Fire Protection & Safety Guardian Systems
Lamp Alarm
Fan
Door Sensor
Temperature Sensor

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





訂購型號

PoE 機種




	IG5-P8084FTE	IG5-P8164FTE
10/100/1000BASE-T(X) PoE	8	8
10/100/1000BASE-T(X)	8	-
100/1000 BASE SFP	8	16
1G/2.5G/10G SFP+	4	
Network management	L3 Routing	
Digital Input / Output	2 sets	
	訂購諮詢	訂購諮詢

Non-PoE 機種






	IG5-24004FTE	IG5-16084FTE	IG5-08164FTE	IG5-00244FTE
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

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:

Hardened 100BASE SFP Modules	www.etherwan.com/tw/products/sfp-fiber-transceiver
Hardened Gigabit SFP Modules	www.etherwan.com/tw/products/sfp-fiber-transceiver
Hardened 10G SFP+ Modules	www.etherwan.com/tw/products/sfp-fiber-transceiver
DIN-Rail Power Supplies	www.etherwan.com/tw/products/din-rail-power-supply

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