

TN-G6500 系列

EN 50155 全 Gigabit 乙太網路交換器配備高達 8 個 PoE 連接埠



特色與優點

- 12 個 Gigabit 連接埠，M12 連接器
- 隔離式電源，電源供應範圍為 24 至 110 VDC
- 符合所有 EN 50155 規範強制性測試項目¹
- -40°C 至 70°C 操作溫度範圍
- IP67 等級外殼保護
- Turbo Ring 與 Turbo Chain (復原時間 <50 毫秒 @ 250 台交換器)，以及透過 RSTP/STP 協議支援網路備援
- 8 個符合 IEEE 802.3at/af 標準的 PoE 和乙太網路複合連接埠
- 每個 PoE 連接埠供電功率最高 30 瓦

認證



簡介

ToughNet TN-G6500 系列 M12 網管型乙太網路交換器專為鐵路應用所設計，適用於軌道車輛及軌道沿線等應用。此系列交換器採用 M12 及其他圓形連接器，可確保緊密、耐用的連線，保障在振動和衝擊常見的工業環境中可靠運作。TN-G6500 系列乙太網路交換器提供 12 個 Gigabit 乙太網路 M12 連接埠；8 個符合 IEEE 802.3at/af 標準的 PoE (乙太網路供電) 連接埠。這些 PoE 交換器被歸類為電源供應設備 (PSE)，每個連接埠可提供高達 30 瓦的電力，並且可供電給符合 IEEE 802.3at/af 標準的 IP 攝影機、無線存取點和 IP 電話等受電設備 (PD)。

TN-G6500 系列結合了 24 至 110 VDC 的寬電源輸入範圍，讓您可以在全球各地使用相同類型的電源，並採用隔離式雙電源輸入設計，可提高通訊系統的可靠性。此外，因為有 -40 到 70°C 的操作溫度範圍和 IP67 等級的機殼防護，適合應用在嚴苛環境中。TN-G6500 系列乙太網路交換器符合 EN 50155 標準的必要部分，涵蓋操作溫度、電源輸入電壓突波、ESD、振動、電源隔離，具有敷形塗層，適用於各種工業應用。

附加特色與優點

- 每個 PoE 連接埠最高可提供 30 瓦，每個交換器的總功率上限為 96 瓦
- IPv6 Ready Logo 認證 (獲得 IPv6 Logo 委員會認證)
- DHCP Option 82 以不同原則指派 IP 位址
- IGMP snooping 和 GMRP，用於過濾 multicast 流量
- 支援 EtherNet/IP 和 Modbus TCP 工業級乙太網路通訊協定
- 以連接埠為基礎的 VLAN、IEEE 802.1Q VLAN 以及 GVRP，用來簡化網路規劃
- QoS (IEEE 802.1p/1Q 和 ToS/DiffServ) 可將即時流量進行分類及排序
- IEEE 802.3ad、LACP 提供最佳化頻寬使用率
- SNMPv1/v2c/v3，支援不同層級的網路管理
- 支援 TACACS+、SNMPv3、IEEE 802.1X、HTTPS 和 SSH，強化網路安全
- RMON 提供有效率的網路監視與主動式功能
- 頻寬管理可預防無法預測的網路條件
- 連接埠鎖定僅允許存取授權的 MAC 位址
- Port mirroring 可用於除錯
- 發生狀況時，可自動透過 Email 和繼電器輸出告警
- 線路切換快速恢復
- LLDP 在網路管理軟體中可用來進行自動拓撲探索
- 可透過網頁瀏覽器、Telnet/串列主控台、CLI 和 Windows 程式進行設定
- 迴圈保護，防止網路迴圈
- 面板安裝

1. 此產品適用於符合 EN 50155 標準所定義的所有軌道車輛應用。若需更詳細的說明，請參照：www.moxa.com/doc/specs/EN_50155_Compliance.pdf

規格

Ethernet Interface

10/100/1000BaseT(X) Ports (M12 A-coded 8-pin female connector)	4
PoE Ports (100/1000BaseT(X), M12 X-coded 8-pin female connector)	8
Standards	IEEE 802.1D-2004 for Spanning Tree Protocol IEEE 802.1p for Class of Service IEEE 802.1Q for VLAN Tagging IEEE 802.1s for Multiple Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1X for authentication IEEE 802.3 for 10BaseT IEEE 802.3ab for 1000BaseT(X) IEEE 802.3ad for Port Trunk with LACP IEEE 802.3af/at for PoE/PoE+ output IEEE 802.3x for flow control IEEE 802.3u for 100BaseT(X)

Ethernet Software Features

Broadcast Forwarding	Broadcast forwarding
Configuration Options	Command Line Interface (CLI), Command Line Interface (CLI) through Serial/Telnet/SSH, Web Console (HTTP/HTTPS), Windows Utility
Filter	802.1Q GMRP GVRP Port-based VLAN Static Multicast IGMP Querier DHCP Filter IGMP Snooping v1/v2/v3
Industrial Protocols	SNMPv1/v2c/v3
Management	Account Management Back Pressure Flow Control Flow control HTTP IPv4/IPv6 LLDP Port Mirroring QoS/CoS/ToS RARP RMON SMTP SNMP Inform Syslog Telnet SNMP Trap DHCP Client (options 1/3/50/51/53/54/55/57/66/67) DHCP Server (options 1/3/12/15/42/50/55) DNS Server Port-based DHCP Server DHCP option 82 (relay agent) Loop Protection ICMP
MIB	Bridge MIB Ethernet-like MIB MIB-II P-BRIDGE MIB Q-BRIDGE MIB RMON MIB Groups 1, 2, 3, 9 RSTP MIB
Redundancy Protocols	Static Port Trunk

	MSTP RSTP Turbo Ring v2 STP LACP Turbo Chain Turbo Ring with DRC
Security	Trust access control TACACS+ Broadcast storm protection HTTPS/SSL Local Account Accessibility Port Lock RADIUS Rate Limit Access control list SSH
Time Management	NTP Server/Client SNTP

Switch Properties

IGMP Groups	256
Max. No. of VLANs	256
Priority Queues	4
VLAN ID Range	VID 1 to 4094
Jumbo Frame Size	9.216 KB

LED Interface

LED Indicators	PWR1, PWR2, FAULT, MSTR/HEAD, CPLR/TAIL, Ethernet, PoE
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Serial Interface

Console Port	RS-232 (M12 B-coded 5-pin female connector)
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Power Parameters

No. of Power Inputs	2
Input Voltage	24/36/48/72/96/110 VDC
Operating Voltage	16.8 to 137.5 VDC
Input Current	5.8 A @ 24 VDC
Power Consumption (Max.)	With PoE disabled: 16.1 W @ 24 VDC 16.9 W @ 110 VDC With PoE enabled: 33.5 W @ 24 VDC 26.8 W @ 110 VDC
Total PoE Power Budget	96 W
Overload Current Protection	Supported
Reverse Polarity Protection	Supported
Power Connector	M12 K-coded 5-pin male connector

Physical Characteristics

Housing	Metal
IP Rating	IP67
Dimensions	159 x 97 x 100 mm (6.26 x 3.82 x 3.94 in)
Weight	1,750 g (3.86 lb)
Installation	Wall mounting
Protection	TN-G6512-8GPoE-WV-CT-T: PCB conformal coating

Environmental Limits

Operating Temperature	-40 to 70°C (-40 to 158°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
Altitude	2000 m

Standards and Certifications

EMC	EN 55032/35
EMS	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 6 GHz: 20 V/m IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF
Freefall	IEC 60068-2-31
Radio Frequency	FCC
Railway	EN 50121-4 EN 50155 IEC 60571
Railway Fire Protection	EN 45545-2
Safety	IEC 62368-1 UL 62368-1
Shock	IEC 60068-2-27, IEC 61373, EN 50155
Vibration	IEC 60068-2-64, IEC 61373, EN 50155

Declaration

Green Product	RoHS, CRoHS, WEEE
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MTBF

Time	478,246 hrs
Standards	Telcordia Standard SR-332

Warranty

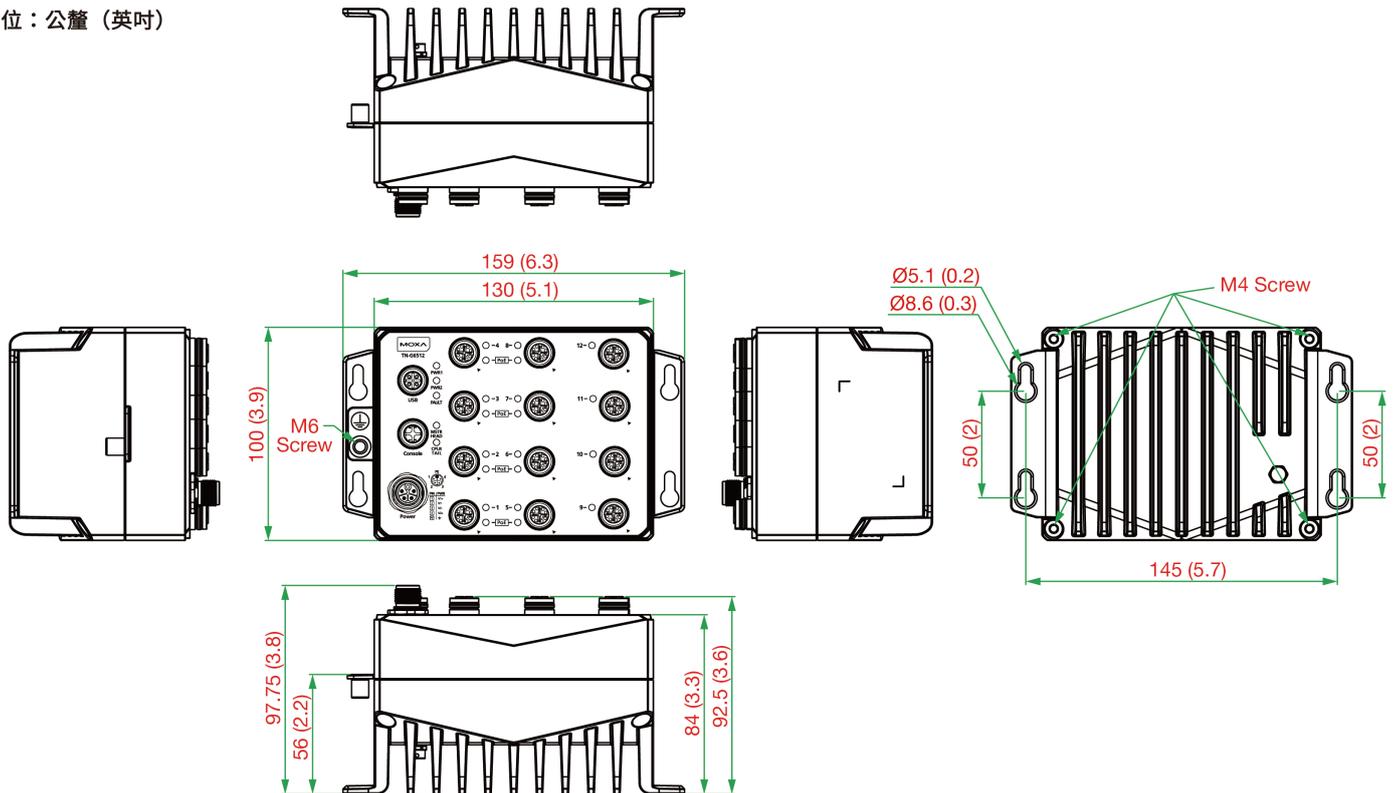
Warranty Period	5 years
Details	See www.moxa.com/tw/warranty

Package Contents

Device	1 x TN-G6500 Series switch
Installation Kit	1 x wall-mounting kit 1 x cap, male, metal, for M12 port 14 x cap, female, metal, for M12 port
Cable	1 x M12-to-DB9 console port
Documentation	1 x quick installation guide 1 x warranty card

尺寸

單位：公釐（英吋）



訂購資訊

Model Name	10/100/1000BaseT(X) Ports, 10M12 X-Coded 8-Pin Female Connector	PoE Ports 100/1000BaseT(X), 10M12 X-Coded 8-Pin Female Connector	Conformal Coating
TN-G6512-8GPoE-WV-T	4	8	-
TN-G6512-8GPoE-WV-CT-T	4	8	P

配件（選購）

M12 Connector Caps

A-CAP-M12M-M	Metal cap for M12 male connector
A-CAP-M12F-M	Metal cap for M12 female connector
A-CAP-M12F-M-PP	Metal cap for M12 female push-pull connector

Connectors

M12X-8PMM-IP67-HTG	Crimp type M12 connector, male 8-pin, X-coded, IP67-rated
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Cables

CBL-M12XMM8P-Y-300-IP67	X-coded male M12-to-8-pin open wire cable, yellow, IP67-rated, 3 m
CBL-M12XMM8PRJ45-Y-200-IP67	X-coded male M12-to-RJ45 Ethernet cable, yellow, IP67-rated, 2 m
CBL-M12XMM8P-Y-100-IP67	X-coded male M12-to-8-pin open wire cable, yellow, IP67-rated, 1 m
CBL-M12KFF5POPEN-O-150-IP67	K-coded female M12-to-5-pin open wire power cable, orange, IP67-rated, 1.5 m
CBL-M12BMM5PF9-BK-150-IP68	B-coded male M12-to-5-pin DB9 console cable, black, IP68-rated, 1.5 m

Storage Kits

ABC-02-P-USB-M12-CT-T	USB-based configuration backup and restoration tool with M12 connector for Moxa's ToughNet series of managed Ethernet switches and wireless APs/bridges/clients, -40 to 75°C operating temperature, conformal coating
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