

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，推拉式 M12 連接頭
- 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 <20 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



EN 50155



EN 50121-4



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旁等應用。交換器使用 M12 和其他圓形接頭，確保連接緊密牢固，確保在振動和衝擊常見的工業環境中可正常運作。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 系列專為推拉式電纜量身打造 M12 接頭，使安裝方便快速，並讓 M12 旋轉電纜可被使用。交換器支援 24 至 110 VDC 的寬範圍電源輸入並具備隔離式雙電源輸入，不僅便於用戶在全球各地使用相同類型的電源，還能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-G6512 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，具有數形塗層，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 依據不同的政策配置 IP 位置
- IGMP 和 GMRP，用於篩選多播流量
- 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，適用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狀況
- 連接埠鎖定僅允許被授權的 MAC 位置存取
- 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/序列主控台、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 Mirror 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

Input Voltage	24/36/48/72/96/110 VDC
No. of Power Inputs	2
Operating Voltage	16.8 to 137.5 VDC
Overload Current Protection	Supported
Reverse Polarity Protection	Supported
Total PoE Power Budget	96 W
Input Current	5.8 A @ 24 VDC
Power Connector	M12 K-coded 5-pin male connector

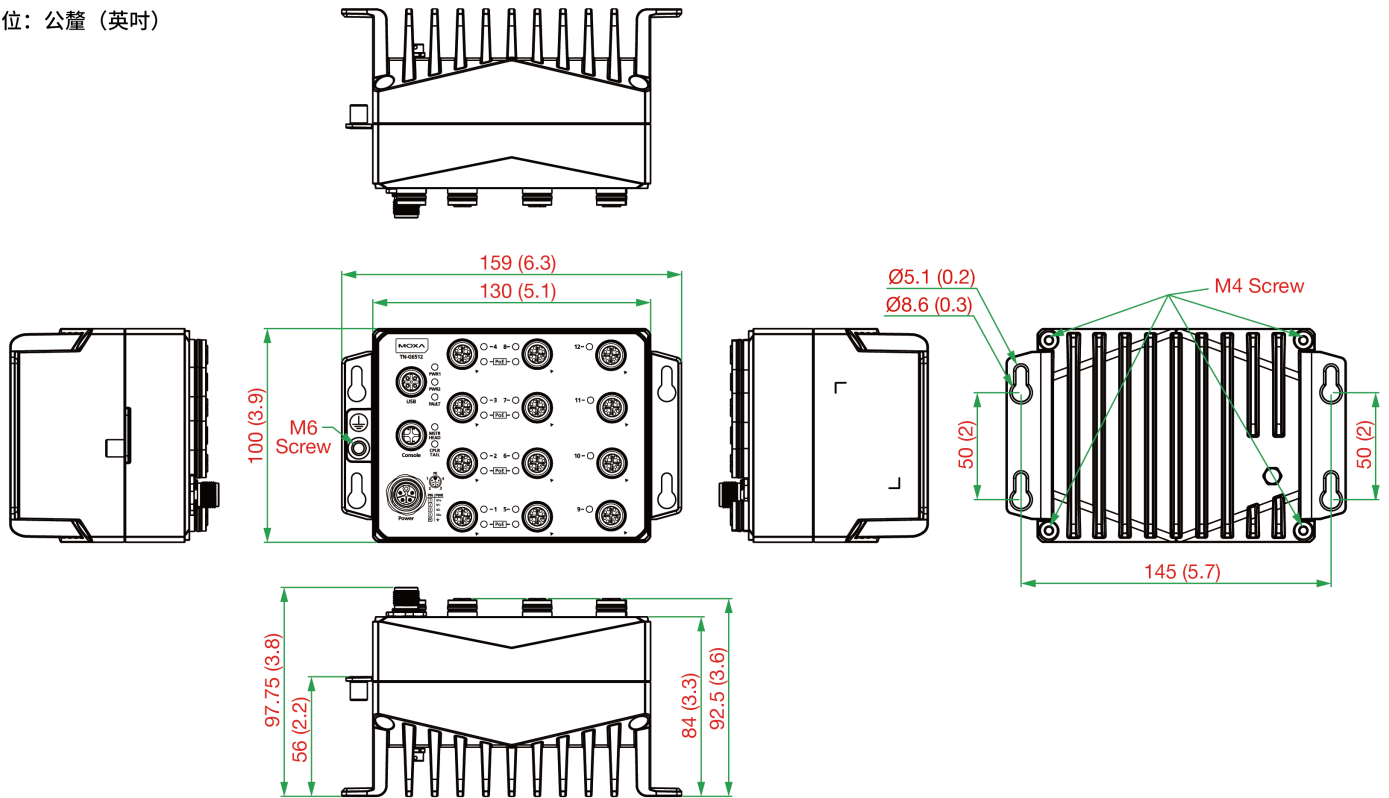
Physical Characteristics

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
MTBF	
Time	478,246 hrs
Standards	Telcordia SR332
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	√

配件（選購）

M12 Connector Caps

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

Connectors

M12X-8PMM-IP67-HTG	X-coded screw-in Gigabit Ethernet connector, 8-pin male M12 connector, IP67
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Cables

CBL-M12XMM8P-Y-300-IP67	M12-to-M12 Cat-5 UTP Ethernet cable, 8-pin male X-coded crimp type M12 connector, IP67, 3 m
CBL-M12XMM8PRJ45-Y-200-IP67	M12-to-RJ45 Cat-5 UTP Ethernet cable, 8-pin male X-coded crimp type M12 connector, IP67, 2 m
CBL-M12XMM8P-Y-100-IP67	M12-to-M12 Cat-5 UTP Ethernet cable, 8-pin male X-coded crimp type M12 connector, IP67, 1 m
CBL-M12KFF5POPEN-O-150-IP67	CBL-M12KFF5POPEN-O-150-IP67
CBL-M12BMM5PF9-BK-150-IP68	CBL-M12BMM5PF9-BK-150-IP68

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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