

PT-510 系列

IEC 61850-3 10 埠 Layer2 鋁軌式網管型乙太網路交換器



特色與優點

- 符合 IEC 61850-3 及 IEEE 1613 規範
- Turbo Ring 與 Turbo Chain (對於 250 台交換器，斷線復連時間小於 20 毫秒)，以及 STP/RSTP/MSTP 網路冗餘
- 透過網頁瀏覽器、CLI、Telnet / 序列主控台、Windows 工具程式和 ABC-01 輕鬆管理網路
- 24 VDC 或 48 VDC 雙備援電源輸入(具隔離保護)
- 寬廣的 110/220 VDC/VAC 電源供應器範圍
- 支援 Modbus TCP、LLDP、SNMP、QoS、IGMP、VLAN、IEEE 802.1X、HTTPS、SNMPv3 及 SSH
- -40 至 85°C 操作溫度範圍

認證



簡介

PowerTrans PT-510 系列專為滿足變電站自動化系統 (IEC 61850-3、IEEE 1613) 的需求而設計。

PT-510 的光纖快速乙太網路骨幹、備援環網、雙備援電源輸入 (24 VDC 或 48 VDC)，以及具備隔離保護的電源輸入 (24 VDC、48 VDC 或 110/220 VDC/VAC) 可提高通訊可靠性，節省線材/佈線成本。此外，PT-510 交換器的 DIN Rail 鋁軌式及壁掛設計可輕鬆進行網路規劃，可讓您為配電應用安裝最多 10 個快速乙太網路連接埠，提供更大的彈性。

附加特色與優點

- 命令列介面 (CLI) 快速設定主要網管功能
- VLAN Unaware：支援由特定 IED 接收的優先順序標記框架
- 支援 EtherNet/IP 和 Modbus TCP 工業級乙太網路通訊協定
- 可透過網頁瀏覽器、Telnet / 序列主控台、CLI、Windows 工具程式，以及 ABC-01 自動備份設定程式進行設定
- DHCP Option 82 適用於以不同原則指派 IP 位址
- IGMP ssnopping 和 GMRP，用於篩選來自工業級乙太網路協定的多播流量
- IEEE 802.3ad、LACP 提供最佳頻寬使用率
- 頻寬管理可防止無法預測的網路狀態
- 多埠監控可用於線上除錯
- 發生例外狀況時透過電子郵件和繼電器輸出自動發出警告
- RMON 提供主動且有效率的網路監控
- 自動恢復連線設備的 IP 位址
- 線路交換快速恢復

網路安全功能

- 具有多層安全性的使用者密碼可防止未經授權的設定
- 採用 SSH/HTTPS 進行密碼和資料加密
- 透過 802.1X 連接埠型網路存取控制來鎖定交換器連接埠，只有授權的用戶端才能存取連接埠
- RADIUS/TACACS+ 允許您從中控位置管理密碼
- 802.1Q VLAN 可讓您以邏輯方式分割在所選交換器連接埠之間傳輸的流量
- 安全交換器連接埠，僅讓特定裝置及 / 或 MAC 位址存取連接埠
- 停用一或多個連接埠以封鎖網路流量
- SNMPv3 提供加密驗證及存取安全性

規格

Ethernet Interface

10/100BaseT(X) Ports (RJ45 connector)	PT-510-4M Series: 6 PT-510-3S Series: 7 PT-510-MM/SS Series: 8
100BaseFX Ports (multi-mode SC connector)	PT-510-SC Series: 2
100BaseFX Ports (multi-mode ST connector)	PT-510-MM Series: 2

	PT-510-4M Series: 4																																						
100BaseFX Ports (single-mode SC connector)	PT-510-SS Series: 2 PT-510-3S Series: 3																																						
100BaseFX Ports (multi-mode LC connector)	PT-510-MM Series: 2																																						
100BaseFX Ports (single-mode LC connector)	PT-510-SS Series: 2																																						
Optical Fiber	<table border="1"> <thead> <tr> <th colspan="2" rowspan="2"></th> <th colspan="2">100BaseFX</th> </tr> <tr> <th>Multi-Mode</th> <th>Single-Mode</th> </tr> <tr> <th rowspan="2">Fiber Cable Type</th> <th rowspan="2">OM1</th> <th>50/125 μm</th> <th rowspan="2">G.652</th> </tr> <tr> <th>800 MHz x km</th> </tr> </thead> <tbody> <tr> <td colspan="2">Typical Distance</td> <td>4 km</td> <td>40 km</td> </tr> <tr> <td rowspan="3">Wavelength</td> <td>Typical (nm)</td> <td colspan="2">1300</td> </tr> <tr> <td>TX Range (nm)</td> <td>1260 to 1360</td> <td>1280 to 1340</td> </tr> <tr> <td>RX Range (nm)</td> <td>1100 to 1600</td> <td>1100 to 1600</td> </tr> <tr> <td rowspan="4">Optical Power</td> <td>TX Range (dBm)</td> <td>-10 to -20</td> <td>0 to -5</td> </tr> <tr> <td>RX Range (dBm)</td> <td>-3 to -32</td> <td>-3 to -34</td> </tr> <tr> <td>Link Budget (dB)</td> <td>12</td> <td>29</td> </tr> <tr> <td>Dispersion Penalty (dB)</td> <td>3</td> <td>1</td> </tr> </tbody> </table> <p>Note: When connecting a single-mode fiber transceiver, we recommend using an attenuator to prevent damage caused by excessive optical power. Note: Compute the "typical distance" of a specific fiber transceiver as follows: Link budget (dB) > dispersion penalty (dB) + total link loss (dB).</p>			100BaseFX		Multi-Mode	Single-Mode	Fiber Cable Type	OM1	50/125 μ m	G.652	800 MHz x km	Typical Distance		4 km	40 km	Wavelength	Typical (nm)	1300		TX Range (nm)	1260 to 1360	1280 to 1340	RX Range (nm)	1100 to 1600	1100 to 1600	Optical Power	TX Range (dBm)	-10 to -20	0 to -5	RX Range (dBm)	-3 to -32	-3 to -34	Link Budget (dB)	12	29	Dispersion Penalty (dB)	3	1
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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 802.3u for 100BaseT(X) and 100BaseFX IEEE 802.3x for flow control																																						

Ethernet Software Features

Filter	802.1Q, GMRP, GVRP, IGMP v1/v2c, Port-based VLAN, VLAN unaware
Industrial Protocols	EtherNet/IP, Modbus TCP
Management	Back Pressure Flow Control, BOOTP, DHCP Option 66/67/82, DHCP Server/Client, Flow control, HTTP, IPv4/IPv6, LLDP, Port Mirror, RARP, RMON, SMTP, SNMP Inform, SNMPv1/v2c/v3, Syslog, Telnet, TFTP
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	MSTP, RSTP, STP, Turbo Chain, Turbo Ring v1/v2
Security	HTTPS/SSL, TACACS+, Port Lock, RADIUS, Rate Limit, SSH
Time Management	NTP Server/Client, SNTP

Switch Properties

IGMP Groups	256
MAC Table Size	8 K
Max. No. of VLANs	64
Packet Buffer Size	1 Mbits
VLAN ID Range	VID 1 to 4094
Priority Queues	4

Serial Interface

Console Port	RS-232 (RJ45)
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Input/Output Interface

Alarm Contact Channels	Resistive load: 1 A @ 24 VDC
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Power Parameters

Connection	1 removable 5-contact terminal block(s)
Input Voltage	PT-510-24/48 Series: Redundant power inputs PT-510-24 Series: 24 VDC (18 to 36 VDC) PT-510-48 Series: 48 VDC (36 to 72 VDC) PT-510-HV Series: 110/220 VAC/VDC (88 to 300 VAC, 85 to 264 VDC)
Overload Current Protection	Supported
Reverse Polarity Protection	Supported
Input Current	PT-510-24 Series: 0.39 A @ 24 VDC PT-510-48 Series: 0.18 A @ 48 VDC PT-510-HV Series: 0.234/0.148 A @ 110/220 VAC, 0.10/0.052 A @ 110/220 VDC

Physical Characteristics

Housing	Aluminum
IP Rating	IP40
Dimensions (without ears)	80 x 160 x 110 mm (3.15 x 6.30 x 4.33 in)
Weight	1210 g (2.69 lb)
Installation	DIN-rail mounting (with optional kit)

Environmental Limits

Operating Temperature	-40 to 85°C (-40 to 185°F) Note: Cold start requires minimum of 100 VAC @ -40°C
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

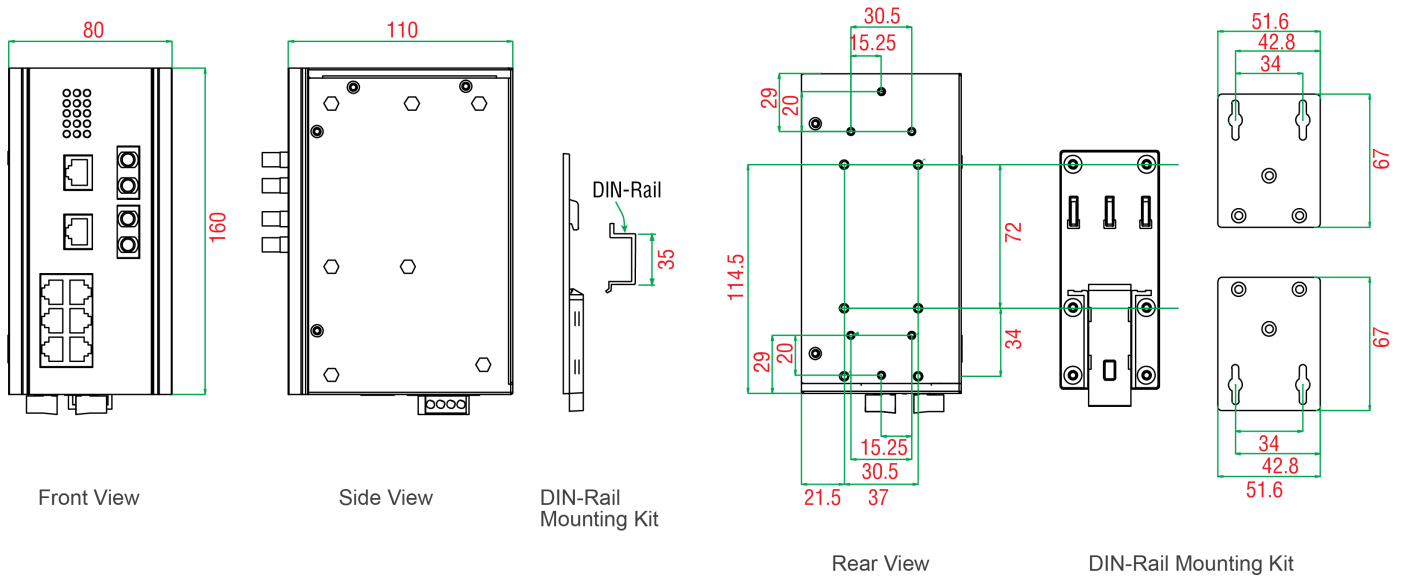
Standards and Certifications

EMI	EN 55032 Class A, CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 35 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV IEC 61000-4-5 Surge: Power: 4 kV; Signal: 4 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF IEC 61000-4-11 DIPs

Power Substation	IEC 61850-3, IEEE 1613
Safety	UL 508
MTBF	
Time	372,276 hrs
Standards	Telcordia SR332
Warranty	
Warranty Period	5 years
Details	See www.moxa.com/tw/warranty
Package Contents	
Device	1 x PT-510 Series switch
Cable	1 x DB9 female to RJ45 10-pin 1 x grounding cable
Installation Kit	1 x DIN-rail kit (PT-510 Series) 12 x cap, plastic, for RJ45 port (PT-510-3S Series) 13 x cap, plastic, for RJ45 port (PT-510-MM/SS Series) 11 x cap, plastic, for RJ45 port (PT-510-4M Series) 3 x cap, plastic, for SC fiber port (PT-510-3S-SC Series) 2 x cap, plastic, for SC fiber port (PT-510-MM-SC/SS-SC Series) 4 x cap, plastic, for ST fiber port (PT-510-4M Series) 2 x cap, plastic, for ST fiber port (PT-510-MM-ST Series) 2 x cap, plastic, for LC fiber port (PT-510-LC Series)
Documentation	1 x document and software CD 1 x quick installation guide 1 x warranty card 1 x product certificates of quality inspection, Simplified Chinese 1 x product notice, Simplified Chinese

尺寸

單位：公釐



訂購資訊

Model Name	10/ 100BaseT(X)	100BaseFX Single-Mode Ports with SC Connector	100BaseFX Multi-Mode Ports with SC Connector	100BaseFX Multi-Mode Ports with ST Connector	100BaseFX Single-Mode Ports with LC Connector	100BaseFX Multi-Mode Ports with LC Connector	Operating Temp.	Input Voltage
PT-510-SS-SC-24	8	2	-	-	-	-	-45 to 85°C	24 VDC
PT-510-SS-SC-48	8	2	-	-	-	-	-45 to 85°C	48 VDC
PT-510-MM-SC-24	8	-	2	-	-	-	-45 to 85°C	24 VDC
PT-510-MM-SC-48	8	-	2	-	-	-	-45 to 85°C	48 VDC
PT-510-MM-ST-24	8	-	-	2	-	-	-45 to 85°C	24 VDC
PT-510-MM-ST-48	8	-	-	2	-	-	-45 to 85°C	48 VDC
PT-510-SS-LC-24	8	-	-	-	2	-	-45 to 85°C	24 VDC
PT-510-SS-LC-48	8	-	-	-	2	-	-45 to 85°C	48 VDC
PT-510-MM-LC-24	8	-	-	-	-	2	-45 to 85°C	24 VDC
PT-510-MM-LC-48	8	-	-	-	-	2	-45 to 85°C	48 VDC
PT-510-SS-SC-HV	8	2	-	-	-	-	-45 to 85°C	110/220 VDC/ VAC
PT-510-MM-SC-HV	8	-	2	-	-	-	-45 to 85°C	110/220 VDC/ VAC
PT-510-MM-ST-HV	8	-	-	2	-	-	-45 to 85°C	110/220 VDC/ VAC
PT-510-MM-LC-HV	8	-	-	-	-	2	-45 to 85°C	110/220 VDC/ VAC
PT-510-SS-LC-HV	8	-	-	-	2	-	-45 to 85°C	110/220 VDC/ VAC
PT-510-3S-SC-HV	7	3	-	-	-	-	-45 to 85°C	110/220 VDC/ VAC
PT-510-3S-SC-24	7	3	-	-	-	-	-45 to 85°C	24 VDC
PT-510-3S-SC-48	7	3	-	-	-	-	-45 to 85°C	48 VDC
PT-510-4M-ST-24	6	-	-	4	-	-	-45 to 85°C	24 VDC
PT-510-4M-ST-48	6	-	-	4	-	-	-45 to 85°C	48 VDC
PT-510-4M-ST-HV	6	-	-	4	-	-	-45 to 85°C	110/220 VDC/ VAC

前視圖

Storage Kits

ABC-01

Configuration backup and restoration tool for managed Ethernet switches and AWK Series wireless APs/bridges/clients, 0 to 60°C operating temperature

Software

MXview-50	Industrial network management software with a license for 50 nodes (by IP address)
MXview-100	Industrial network management software with a license for 100 nodes (by IP address)
MXview-250	Industrial network management software with a license for 250 nodes (by IP address)
MXview-500	Industrial network management software with a license for 500 nodes (by IP address)
MXview-1000	Industrial network management software with a license for 1000 nodes (by IP address)
MXview-2000	Industrial network management software with a license for 2000 nodes (by IP address)
MXview Upgrade-50	License expansion of MXview industrial network management software by 50 nodes (by IP address)

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