Build Cyber Security Network in Critical Surveillance



DP412

Industrial 8G + 4GF Layer 2 PoE Cyber Security Switch

The new DP412 is a full Gigabit L2 Managed PoE+ Ethernet Switch. Equipped with 8 Giga 802.3at PoE ports and 4-port 1000Base-X SFP connectivity, the switch provides reliable network with high performance. It supports critical cyber security features that meet IEC62443-4-2 criteria. Advanced management and redundancy features of DP412 guarantee the fastest network recovery, zero packet loss data transmission, and high level of network protection against the hackers' attacks. Besides, rugged design with EN 61850-3/IEEE 1613/EN 50121-4 standard is the best choice for substation and railway wayside applications.

PoE+ ERPS G.8032v2 Cyber Security EN50121-4 IEC61850-3 IEEE1613

Features & Benefit

Full Gigabit Switching and Ultra-high Throughput

- **12-port Full Gigabit** Ethernet with 8-port RJ-45 and 4-port SFP
- **16K** MAC address table
- **1.5MByte** packet buffer memory for H.264 burst
- **9K** bytes jumbo frame
- Stores and forwards with non-blocking switch fabric

ITU-T G.8032 v1/v2 ERPS Ring Redundancy

- An ITU standard Ring redundancy Protocol
- Provide sub-50ms protection and recovery switching for Ethernet traffic
- Interoperate with 3rd party industrial switch and still remain fast recovery time
- Interoperate with commercial switch instead of STP/RSTP
- Efficient network interconnection and topology with ERPS Chain, multiple chains

Extreme PoE Capability

- 8-port IEEE 802.3af/at compliant PoE, up to 30W/port
- Up to **240W** power budget
- Complete PoE management including per-port **Power Budget Control**, **PoE Scheduling** and **PoE Status**

IEC62443-4-2 Level 3 / 4 Cyber Security

- L2-L7 IPv4/IPv6 Access Control List (ACL)
- DHCP Snooping, IP Source Guard, Dynamic ARP Inspection
- 802.1Q VLAN, Private VLAN, Advanced Port Security
- Multi-Level user passwords
- HTTPS/SSH/SFTP, 256-bit encryption
- 802.1X MAB for non-802.1X compliant end devices
- RADIUS/TACACS+ centralized password authentication

Management Features

- Various configuration paths, including WebGUI, CLI, SNMP and RMON
- IEEE **1588v1/v2 PTP** time management
- LLDP topology control
- USB for easy field configuration and firmware update
- Software utility interface for LAN devices management
- NMS for individual component monitoring

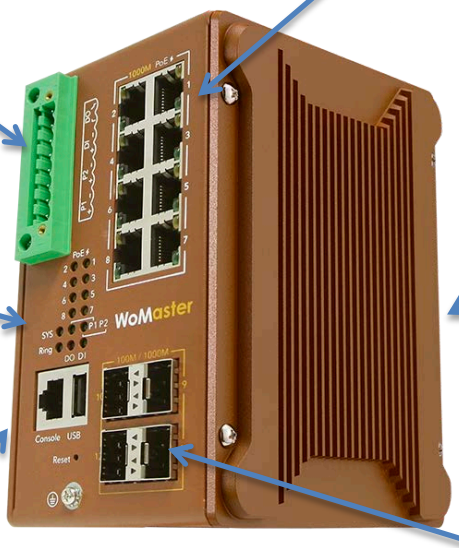
Rugged Design for Substation/Wayside

- **EN 61850-3/ IEEE 1613 for Substation**
- **EN50121-4** for railway trackside applications
- Top level **EMC protection** and excellent heat dissipation design for operating in **-40~75ºC** environment
- IEC 61000-6-2/4 Heavy Industrial Environment

Interfaces

Integrated Power Connector
- 1 x 8-pin terminal block
  4 pin for redundant power input
  2 pin DI
  2 pin DO
- Easy installation

Gigabit Ethernet with PoE
- 8-port 100/1000MBase-T
- IEEE 802.3 af/at PoE



System LED
- 8 x PoE
- 2 x Power
- 1 x System Status
- 1 x DI
- 1 x DO
- 1 x Ring Status

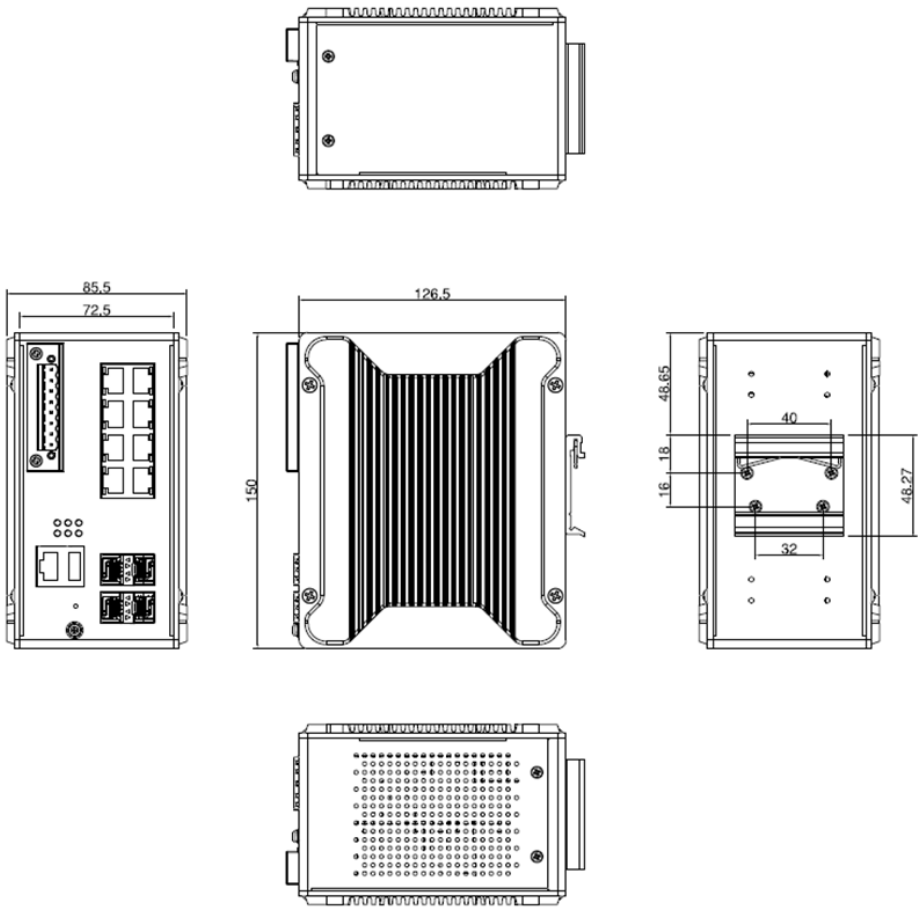
DIN Clip

Easy System Management
- USB for Configuration/Firmware update
- RS232 console

Gigabit Fiber Ethernet
- 4-port 100/1000M SFP

Dimensions

(mm)



Specifications

Technology	
Standard	IEEE 802.3af/at Power over Ethernet
	IEEE 802.3u 100Base-TX Fast Ethernet
	IEEE 802.3ab 1000Base-T Gigabit Ethernet copper
	IEEE 802.3z Gigabit Ethernet Fiber
	IEEE 802.3x Flow Control and back-pressure
	IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
	IEEE 802.1p Class of Service (CoS)
	IEEE 802.1Q VLAN and GVRP
	ITU-T G.8032 Ethernet ring protection switching(ERPS)
	IEEE 802.1D-2004 Rapid Spanning Tree Protocol (RSTP)
	IEEE 802.1Q-2005 Multiple Spanning Tree Protocol (MSTP)
	IEEE 802.3ad Link Aggregation Control Protocol (LACP)
	IEEE 802.1X Port based Network Access Protocol
	IEEE 1588 Precision Time Protocol v1/v2
Performance	
Switch Technology	Store and Forward Technology with non-blocking Switch Fabric
Number of MAC Address	16K
Packet Buffer Memory	1.5MBytes
Jumbo Frame	9216 Bytes
Transfer performance	10Base-TX: 14,880pps, 100Base-TX: 148,800pps, 1000Base-TX/FX: 1,488,100pps
VLAN	256 VLANs
VLAN ID	1~4094
Class of Service	8 Priority Queues per Port
Watchdog	Hardware-based 10 seconds timer
Interface	
Ethernet Port	8 x 10/100/1000Base-T RJ-45, Auto-Negotiation 4 x 100/1000Base SFP, DDM
System LED	2 x Power: Green On 1 x System Status: Ready: Green On, Firmware Updating: Green Blinking 1 x DO: Red On 1 x DI : Green On 1 x Ring: Off: Ring disabled, Green On: Ring normal (Not RPL Owner), Green Blinking: Ring normal (RPL Owner), Amber On: Ring abnormal, Amber Blinking: Ring port fail 8 x PoE: Amber On
Ethernet Port LED	Link (Green On), Active (Green Blinking), Speed 1000M(Amber On), Speed 100M(Off)
SFP LED	Link (Green On), Active (Green Blinking), Speed 1000M(Amber On), Speed 100M(Off)
Reset	System Reboot(2-6 Seconds)/Default Settings Reset(over 7 Seconds)
Console	1 x RS232 in RJ45 for System Configuration. Baud Rate:115200.n.8.1
USB	1 x USB for Configuration/Firmware Update
Power Input, Digital Input, Digital Output	8-Pin Removable Terminal Block Connector: 4 Pins for Redundant Power 4 Pins for DI, DO (Relay Alarm) 1x Digital Output: Dry Relay Output with 0.5A /24V DC 1x Digital Input: DI with Photo-Coupler Isolation High: DC 11~30V Low: DC 0~10V
Power Requirement	
Input Voltage	48VDC (46~57VDC), 50~57VDC for IEEE802.3at
Reverse Polarity Protect	Yes
Input Current	4.67A@54V
Power Consumption	Max 18.9W@54VDC full traffic without PD loading, suggest to reserve 15% tolerance

PoE	
Power forwarding mode	Alternative A
PoE Power Budget	PoE: Max.240W@75˚C Per Port: Max. 30W
PoE Mode	IEEE 802.3af/at
Management	System/Port Power Budget Control, PoE Scheduling, PD Alive Check, PoE Status
Software	
Management Interface	CGI WebGUI, Command Line Interface (CLI), Telnet, SNMP
Time Management	NTP, IEEE 1588 Precision Time Protocol v1/v2
Network Management	IPv4/IPv6, SNMP v1/v2c/v3/Trap, MIBs, RMON, LLDP, DHCP server/client/Option 82, TFTP, System Log, SMTP
Traffic Management	Flow Control, Port Trunk/802.3ad LACP, VLAN, Private VLAN, GVRP, GMRP, QinQ, QoS, IGMP Snooping v1/v2/v3, Rate Control, Storm Control, Port Mirror
Security	IEEE 802.1X/RADIUS, Private VLAN, ACL(MAC/IP filter), HTTPs/SSH secure login, SFTP * DHCP Snooping, IP Source Guard, Dynamic ARP Inspection, 802.1X MAB, TACACS+
Redundancy	Rapid Spanning Tree Protocol (RSTP)/Multiple Spanning Tree Protocol (MSTP) ITU-T G.8032 v1/v2 Ethernet Ring Protection Switching (ERPS)
Mechanical	
Installation	DIN Rail
Enclosure Material	Steel Metal with Aluminum
Dimension	85.5 x 150 x 126.5 (W x H x D) without DIN Rail Clip
Ingress Protection	IP31
Weight	1.38KG
Environmental	
Operating Temperature & Humidity	-40˚C~75˚C , 0%~95% Non- Condensing
Storage Temperature	-40˚C~85˚C
Hi-Pot Insulation	AC 1.5KV
MTBF	>500,000 hours
Warranty	5 years
Standard	
Safety	IEC60950-1 Compliance
EMC	EN61000-6-2/EN61000-6-4
EMI	CISPR 22, FCC part 15B Class A
EMS	EN61000-4-2 ESD, EN61000-4-3 RS, EN61000-4-4 EFT, EN61000-4-5, EN61000-4-6 CS, EN61000-4-8 Magnetic Field
Railway	EN50121-4
Substation	EN 61850-3/ IEEE1613

* By Request

Ordering Information

Model Name	Description
DP412	Industrial 8G+4GF L2 Managed PoE+ Switch
	Package List
	1 x Product Unit (without SFP transceiver)
	1 x 8-pin Removable Terminal Connector
	1 x Attached Din Clip
	1 x Quick Installation Guide

Optional Accessory

Item	
MK-D1-2	Wall-mounting kit with 2 plates and 8 screws
CBL-RJ45F9-1.5M	Serial RS232 console cable RJ45 to DB9 Female 1.5Meter
SFPGEM05	SFP, 1000Mbps, LC, multi, 550M, 0~70°C
SFPGEM05T	SFP, 1000Mbps, LC, multi, 550M, -40~85°C
SFPGEM05D	SFP, 1000Mbps, LC, multi, DDM, 550M, 0~70°C
SFPGEM05DT	SFP, 1000Mbps, LC, multi, DDM, 550M, -40~85°C
SFPGEM2	SFP, 1000Mbps, LC, multi, 2KM, 0~70°C
SFPGEM2T	SFP, 1000Mbps, LC, multi, 2KM, -40~85°C
SFPGEM2D	SFP, 1000Mbps, LC, multi, DDM, 2KM, 0~70°C
SFPGEM2DT	SFP, 1000Mbps, LC, multi, DDM, 2KM, -40~85°C
SFPGES10	SFP, 1000Mbps, LC, single, 10KM, 0~70°C
SFPGES10T	SFP, 1000Mbps, LC, single, 10KM, -40~85°C
SFPGES10D	SFP, 1000Mbps, LC, single, DDM, 10KM, 0~70°C
SFPGES30	SFP, 1000Mbps, LC, single, 30KM, 0~70°C
SFPGES30T	SFP, 1000Mbps, LC, single, 30KM, -40~85°C
SFPGES30D	SFP, 1000Mbps, LC, single, DDM, 30KM, 0~70°C
SFPXGM03D	SFP+, 10Gbps, LC, multi, DDM, 300M, 0~70°C
SFPXGS10D	SFP+, 10Gbps, LC, single, DDM, 10KM, 0~70°C
SFPGES10-A	SFP, 1000Mbps, LC, single, 10KM, BiDi TX-1310nm RX-1550nm, 0~70°C
SFPGES10-B	SFP, 1000Mbps, LC, single, 10KM, BiDi TX-1550nm RX-1310nm, 0~70°C
SFPGES10T-A	SFP, 1000Mbps, LC, single, 10KM, BiDi TX-1310nm RX-1550nm, -40~85°C
SFPGES10T-B	SFP, 1000Mbps, LC, single, 10KM, BiDi TX-1550nm RX-1310nm, -40~85°C
SFPGES10D-A	SFP, 1000Mbps, LC, single, DDM, 10KM, BiDi TX-1310nm RX-1550nm, 0~70°C
SFPGES10D-B	SFP, 1000Mbps, LC, single, DDM, 10KM, BiDi TX-1550nm RX-1310nm, 0~70°C