

Rackmount 28G PoE Switch for Critical Surveillance

RP428

Industrial 28G L2+ Rackmount Managed PoE+ Ethernet Switch

RP428 is an industrial grade rackmount 28G switch with max. 24 Giga PoE+ ports, 4 Giga combo ports and 4x100M/1G fiber SFP ports, support max. 8 fiber Giga ports help to link more field switches with long distance fiber connections. The 24 full giga PoE+ ports, AC plus 2 DC inputs enhance the overall throughput and power delivery capacities. Rugged design and high EMC immunity makes RP428 an ideal solution for industrial Critical Surveillance applications.



ViewMaster
NetMaster
ThingsMaster



Features & Benefits

High Throughput Ethernet Switching & Extreme 802.3at PoE+ Capacity

- 28-port Full GbE, by 20-port GbE RJ45 and 4-port GbE RJ45/SFP Combo, and 4 100M/1G SFP fiber ports.
- Up to 24 GbE IEEE 802.3at/af compliant PoE+ ports, up to 30W per port
- Up to 8 100M/1GbE fiber ports add more fiber links to field switches
- DDM function for fiber connectivity monitoring
- Powerful 1.2GHz ARM Cortex-A9 processor
- Energy-Efficient Ethernet for power saving
- Non-blocking switch fabric design
- 8 flexible Class of Service(CoS) queues, 512 L2 Multicast Groups for video applications
- 16K MAC address table, 9Kb Jumbo Frame
- **PoE management** including per-port Power Budget Control, PoE Scheduling, Priority, PD Alive Check and PoE Status

ITU-T G.8032 v2 ERPS Ring Redundancy

- ITU-T G.8032 v1/v2 ERPS Standard Ring Redundancy protocol
- Supports HW-based CFM transmission for overcoming GbE copper physical limitation and providing minimum 20ms recovery time, seamless restoration time
- Inter-Operability with 3rd party industrial switch and still remain fast recovery time
- Replace Ring + Chain + Dual Homing

Enhanced RSTP(eRSTP)

- Enhance the RSTP fault recovery time performance
- Enhance RSTP performance for large ring network topologies with up to 80 switches

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

Industrial IoT LAN & Cloud Management

- Various configuration paths, including CGI WebGUI, CLI, SNMP and RMON
- Support WoMaster Software Utilities:
 - NetMaster Network Management System
 - ViewMaster for Configuration Management
 - ThingMaster*, ThingMaster OTA* for device management over Cloud*
- Support MQTT* protocol, ready to use AWS/Azure and Private Cloud Agent for cloud management
- LLDP for topology control, auto-topology drawing
- USB for easy field configuration and firmware update

Rugged Design for Industrial Control Room and Wayside Network Switching

- **EN50121-4** compliance for Railway Trackside, Roadside, Industrial Control Room applications
- Equips with 310W AC power supply and 2x DC 54V Input, up to 600W power budget.
- Seamless forwarding while EMC attack (TBD)
- Excellent heat dissipation design for operating in **-40~70°C** environments
- High level EMC protection exceeding traffic control and heavy industrial standards' requirements
- IEC 61000-6-2/4 Heavy Industrial Environment

*Project Request



Interfaces

System LED:
Power, PoE,
System & Ring
status

20x 100/1000M RJ-45 PoE+
with LED for Link status

4x 100/1000M Copper / 100/1000M SFP
Fiber Combo with LED for Link status
Configured as

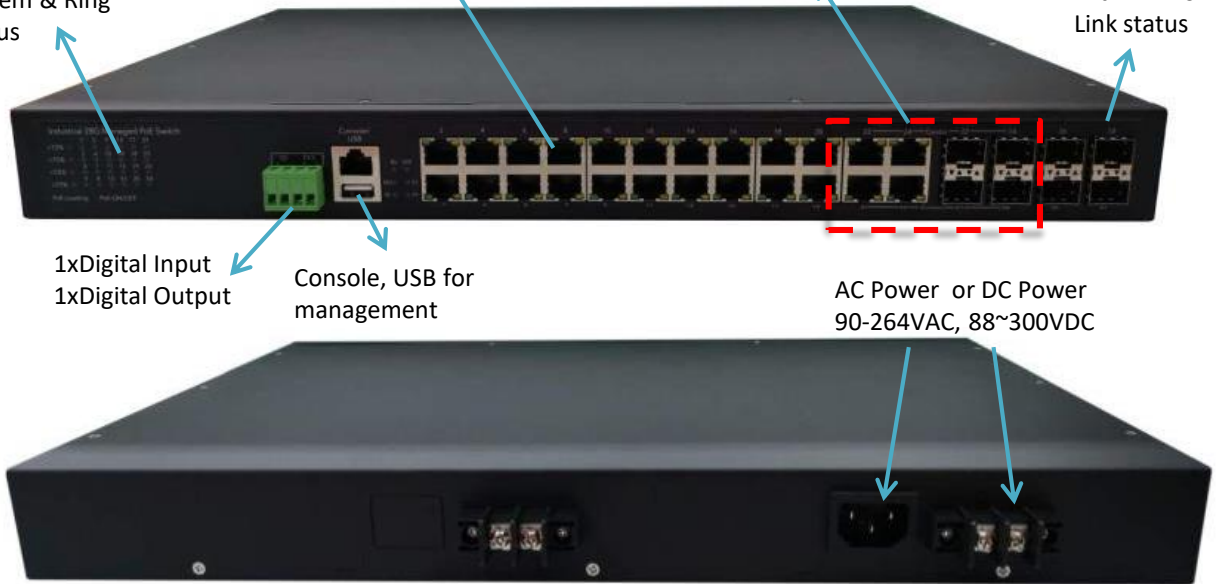
- 4 Copper PoE+ or
- 4 Fiber or
- 2 Copper and 2 Fiber

4x 100/1000M
SFP Fiber
with LED for
Link status

1xDigital Input
1xDigital Output

Console, USB for
management

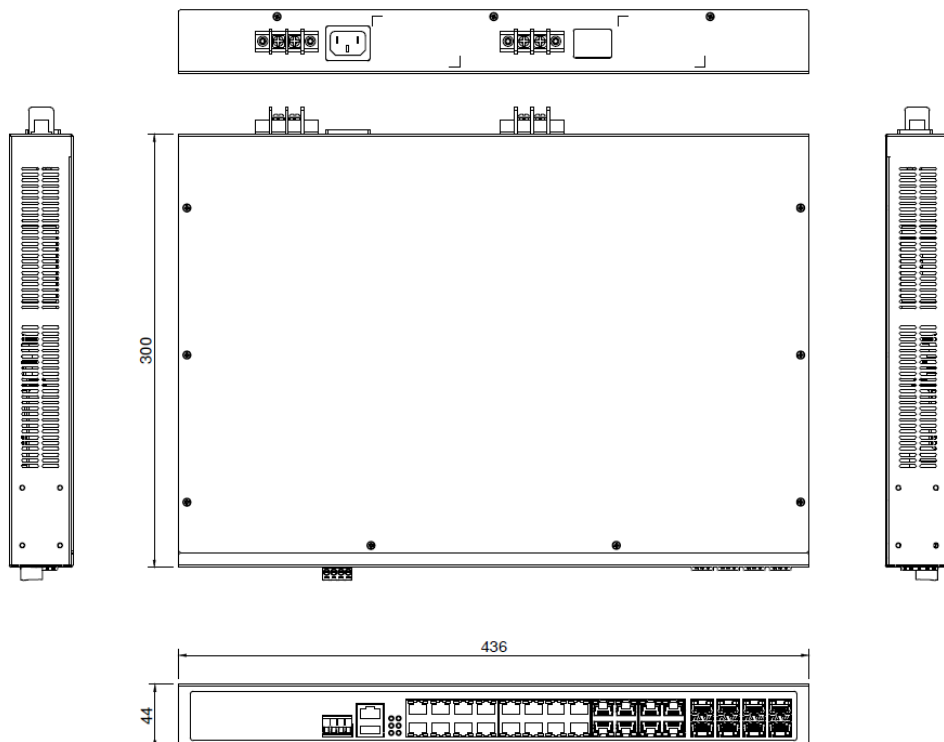
AC Power or DC Power
90-264VAC, 88~300VDC



Dimensions

RP428-2AC/RP428-AC+DC

Dimension: 436 x 44 x 300 mm(W x H x D)



Technology	
Standard	IEEE 802.3 10Base-T Ethernet
	IEEE 802.3u 100Base-TX Fast Ethernet
	IEEE 802.3u 100Base-FX Fast Ethernet Fiber
	IEEE 802.3ab 1000Base-T Gigabit Ethernet copper
	IEEE 802.3z Gigabit Ethernet Fiber
	IEEE 802.3x Flow Control and back-pressure
	IEEE 802.3az (Energy Efficient Ethernet)
	IEEE 802.1p Class of Service (CoS)
	IEEE 802.1Q VLAN and GVRP
	IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
	IEEE 802.1D-2004 Rapid Spanning Tree Protocol (RSTP)
	IEEE 802.1S Multiple Spanning Tree Protocol (MSTP)
	IEEE 801.1AX/802.3ad Link Aggregation Control Protocol (LACP)
	IEEE 802.1x Port based Network Access Protocol
	IEEE 1588 Precision Time Protocol v2
ITU-T G.8032 version 2 Ethernet ring protection switching(ERPSv2)	
Performance & Scalability	
Switch Technology	Store and Forward Technology with 56Gbps Non-Blocking Switch Fabric Internal Packet Buffer: 4Mb Forwarding rate: 41.67Mpps (1,488,000pps/port)
CPU	Cortex-A9, max. 1.2GHz
RAM	DDR3 2Gb
Number of MAC Address	16K
Jumbo Frame	9216 Bytes
VLAN	256 VLANs, VLAN ID 1~4094
IGMP Groups	512
Traffic Prioritize	8 Priority Queues per Port
Interface	
Ethernet Port	20 x 10/100/1000M RJ45, 24 x 802.3af/at PoE, Auto Negotiation 4 x 100/1000M 802.3af/at PoE RJ45/SFP Combo (4 Copper/4 fiber or 2 copper+2 fiber) 4 x 100/1000M SFP, DDM Energy-Efficient Ethernet for power saving
System LED	2 x Power (P1/P2): Green On 1 x System Status: Ready: Green On, Firmware Updating: Green Blinking 1 x DI: Green On, 1 x Alarm: Red On 1 x Ring Status: Node Normal: Green On, Owner Normal: Green Blinking, Owner/Node Abnormal: Amber On, Ring Port Fail: Amber Blinking
Giga Ethernet Port LED	Link (Green On), Activity (Green Blinking), Speed 1000M(Amber On), Speed 10M/100M (Amber Off)
Giga SFP LED	Port: Link (Green On), Activity (Green Blinking) 1000M: Speed 1000M (Amber On), Speed 100M (Off)
PoE LED	PoE Utilization: Low (0~25%, Green On), Middle (26~50%, Green On), High (51~75%, Amber On), Critical (Higher than 75%, Red On) 24x PoE: PoE ON (Amber On)
Console	1 x RJ45 based RS232 for System Configuration. Baud Rate: 115200.n.8.1

USB	1 x USB for Configuration/Firmware Update
Digital Output (Alarm)	1x Digital Output: Dry Relay Output with 0.5A/24V DC
Digital Input	1x Digital Input. Low: 0~10V, High: 11~30V
Watchdog	Hardware-based 10 seconds timer
Power Requirement	
Operating Voltage	AC Input: 110/220V (90-264VAC), 88~300VDC 2DC Input: 2x 54V Typical (IEEE 802.3at request 50~57V)
Power Consumption	Max. 20W @ 8x SFP plugged without PoE
PoE	
Power forwarding mode	802.3at Alternative A
PoE Power Budget	AC: Up to 310W, Max. 200W@70°C DC: Up to 400W, Max. 400W@70°C Port 1~24: IEEE 802.3at/af, Max. 30W/port
PoE Standard	IEEE 802.3at PoE+, IEEE 802.3af PoE
Management	System/Port Power Budget Control, PoE Scheduling, Priority, PD Alive Check, PoE Status
Software	
Management	CGI WebGUI, Command Line Interface (CLI), IPv4/IPv6(RFC2460), Telnet, SNMP v1/v2c/v3, SNMP Trap/Informs*, RMON, LLDP, DHCP server/client/Option 82, TFTP, System Log, SMTP
Traffic Management	Flow Control, Rate Control, Port Mirror, CoS, QoS, RFC 2474 DiffServ
Filter	IGMP Snooping v1/v2/v3, IGMP Snooping Fast-Leave/Immediate-Leave, IGMP Query, GMRP, IEEE802.1Q VLAN, QinQ, GVRP, Private VLAN
Security	IEEE 802.1X/RADIUS, TLS v1.2, HTTPs/SSH
Advanced Security	TACACS+, Multi-user authentication, IEEE802.1x MAB, DHCP Snooping/IPSG, Dynamic ARP inspection, DoS/DDoS*, Adv. Port security*, SFTP
Redundancy	ERPSv2 (HW-based CFM), STP/RSTP/MSTP, eRSTP, Loop Protection*, Port Trunk/801.1AX/802.3ad LACP
Time Management	NTP, IEEE 1588 Precision Time Protocol v2
IIoT Industrial Protocol	Modbus TCP, EtherNet/IP*, MQTT*, RESTful API*
Private Cloud	ThingsMaster*, ThingMaster OTA*
Public Cloud	AWS Agent*, Azure Agent*
Utility	ViewMaster, NetMaster
MIB	ERPS MIB, MIB-II, Ethernet-like MIB*, P-BRIDGE MIB, Q-BRIDGE MIB, Bridge MIB, RMON MIB Group 1, 2, 3, 9*, WoMaster Private MIB
Mechanical	
Installation	Rackmount
Enclosure Material	Steel Metal
Dimension	RP428 Series: 431 x 44 x 300 mm(W x H x D)
Ingress Protection	IP30
Weight	≈3.5KG(RP428-AC), 3.8Kg(RP428-AC+DC)

Specifications

Environmental

Operating Temperature & Humidity	-40°C~70°C , 0%~95% Non- Condensing
Storage Temperature	-40°C~85°C
MTBF	>445,000 hours
Warranty	5 years

Standard

EMI	CISPR 22, FCC part 15B Class A
EMC	EN50121-4 Compliance for Railway Roadside

Ordering Information

Model Name	Description
RP428-AC-P200	Industrial 28G L2+ Managed PoE+ Ethernet Switch, 24x802.3at PoE+, AC110/220V input
RP428-AC-P200+ 2DC54V	Industrial 28G L2+ Managed PoE+ Ethernet Switch, 24x802.3at PoE+, AC110/220V + Dual 54V input
	Package List
	1 x Product Unit (Without SFP Transceiver)
	2 x Power Cord (EU+US plug)
	1 x Quick Installation Guide
	<i>Note: Other Power Input Type, include high AC Budget by Request. Please contact WoMaster Sales.</i>

Optional Accessory

Item	
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
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