

QUANT 9600 INDUSTRIAL ETHERNET SWITCH SERIES



Q-IE-9600-24P-L3-4G-E



Q-IE-9600-48P-L3-4G-E

PRODUCT OVERVIEW

The **Quant 9600 Industrial Ethernet Switches** deliver a powerful, high-availability core for mission-critical industrial networks. Designed for extreme environments, the 9600 Series combines line-rate Layer 3 routing, gigabit edge access, and multi-gigabit fiber uplinks in a ruggedized, fanless chassis.

With support for 24 or 48 copper Gigabit ports plus four 10G SFP+ uplinks, these switches provide flexible, high-bandwidth aggregation for applications such as smart cities, energy distribution, industrial automation, and surveillance systems. The 9600 Series supports full IPv4/IPv6 dual-stack routing, including static routing, OSPF, BGP, and VRRP, enabling scalable backbone architectures.

Built for harsh environments, the switches offer operational tolerance from $-40\text{ }^{\circ}\text{C}$ to $+80\text{ }^{\circ}\text{C}$, dual AC/DC redundant power inputs, 6 kV surge protection, and robust “fanless” thermal design. High-availability features like ERPS (G.8032), fast link recovery, and modular resiliency components ensure continuous up time in mission-critical deployments.

With its combination of industrial-class hardening, enterprise-grade routing, and fiber backbone support, the Quant 9600 Series is ideal for deploying resilient, scalable core or aggregation layers in demanding network environments.

PRODUCT FEATURE

- **Industrial-Grade Design**

Extended operating range: $-40\text{ }^{\circ}\text{C}$ to $+80\text{ }^{\circ}\text{C}$

IP40 metal enclosure, 6 kV surge protection, and EMI/EMC industrial compliance

Fanless, convection-cooled system for long-term reliability

- **High-Performance Layer 3 Switching**

176 Gbps non-blocking switching fabric

IPv4/IPv6 dual-stack routing: Static, RIP, OSPF, BGP, VRRP

Inter-VLAN routing and policy-based forwarding for traffic segmentation

- **Redundancy and Resilience**

ITU-T G.8032 ERPS ring recovery $< 20\text{ ms}$

STP/RSTP/MSTP and VRRP for multi-path redundancy

Dual AC/DC power inputs with automatic failover

- **Advanced Security**

IEEE 802.1X port authentication, RADIUS/TACACS+ access control

ACL-based filtering (L2–L4), IP/MAC/Port/VLAN binding

DoS protection, broadcast storm control, and user privilege management

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PRODUCT FEATURE

- Comprehensive QoS and Traffic Management**

8 hardware queues per port with SP, WRR, SP+WRR scheduling
DSCP/802.1p prioritization, rate limiting, and WRED congestion avoidance
sFlow and RMON for real-time monitoring

- Flexible Management**

Web GUI, CLI (Telnet/SSH), SNMP v1/v2c/v3, HTTPS/SSH
LLDP topology discovery and Quant-NMS/Cloud centralized management
Dual firmware images for seamless software upgrades

TECHNICAL SPECIFICATION

Model	Downlink PoE Ports	Uplink Ports	CPU	Network Protocol	DRAM	FLASH
Connectivity						
Q-IE-9600-24P-L3-4G-E	24 × 10/100/1000 Base-T RJ45	4 × 1/10 G SFP+	500M	IEEE 802.3af/at	2G	128M
Q-IE-9600-48P-L3-4G-E	48 × 10/100/1000 Base-T RJ45	4 × 1/10 G SFP+	500M	IEEE 802.3af/at	4G	256MB

- Multi-mode 850 nm up to 550 m; Single-mode 1310/1550 nm up to 120 km (SFP+ module dependent).

Model	Switching Capacity	Forwarding Rate	MAC Address Table	Buffer Memory	Jumbo Frame	Forwarding Mode	Input Voltage
Performance and Efficiency							
Q-IE-9600-24P-L3-4G-E	176Gbps	95.23 Mpps	32K	32M	9.6K	Store-and-forward	60 W
Q-IE-9600-48P-L3-4G-E	176Gbps	131Mpps	32 K	32M	9.6K	Store-and-forward	60 W

- ERPS (G.8032) ring protection < 20 ms
- STP/RSTP/MSTP and VRRP for link & gateway redundancy
- Dual firmware and configuration rollback for nonstop operation
- BFD fast detection integrated with OSPF/BGP
- Dual power design (AC/DC) with load sharing and auto-switch
- Fanless heat-sink design ensures silent, dust-proof cooling
- IEC 61000-4 EMC compliance and 6 kV surge protection for industrial reliability

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TECHNICAL SPECIFICATION



Model	Q-IE-9600-24P-L3-4G-E	Q-IE-9600-48P-L3-4G-E
Interface Characteristics		
Fixed Port	1*Console port (115200,N,8,1) 2*AC100-240V power input ports Power off alarm switch port (FAULT) 4*1/10G uplink SFP+ fiber ports (Data) 24*10/100/1000Base-T RJ45 ports (Data) 2*DC12-48V power input ports (support anti-reverse protection)	1*Console port (115200,N,8,1) 2*AC100-240V power input ports Power off alarm switch port (FAULT) 4*1/10G uplink SFP+ fiber ports (Data) 48*10/100/1000Base-T RJ45 ports (Data) 2*DC12-48V power input ports (support anti-reverse protection)
Ethernet Port	Port 1-24 support 10/100/1000Base-T auto-sensing, full/ half duplex MDI/ MDI-X self-adaption	Port 1-48 support 10/100/1000Base-T auto-sensing, full/ half duplex MDI/ MDI-X self-adaption
Twisted Pair Transmission	10BASE-T: Cat3,4,5 UTP(≤100 meters) 100BASE-TX: Cat5 or later UTP(≤100 meters) 1000BASE-T: Cat5e or later UTP(≤100 meters)	
Optical Fiber Port Expansion	Turbo overclocking 2.5G optical module expansion and ring network	
Optical Distance	Multi-mode: 850nm/ 0-550m, 850nm/ 0-300m(10G), Single-mode: 1310nm/ 0-40km, 1550nm/ 0-120km	
Chip Parameter		
Network Management Type	L3	
Forwarding Mode	Store and Forward (Full Wire Speed)	
Switching Capacity	176Gbps (non-blocking)	176Gbps (non-blocking)
Forwarding Rate	95.23Mpps	131Mpps
Power Supply		
Fixed Port	Port 1 to 24	Port 1 to 48
Power Consumption	Standby<25W, Full Load<45W	Standby<30W, Full Load<50W
Power Supply	Built-in power supply, AC 100~240V 50-60Hz, 0.65A	Built-in power supply, AC 100~240V 50-60Hz, 0.65A

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TECHNICAL SPECIFICATION

Model	Q-IE-9600-24P-L3-4G-E	Q-IE-9600-48P-L3-4G-E
Physical Parameter		
Operation Temp/ Humidity	-40~+80°C, 5%~90% RH Non condensing	
Storage Temp/ Humidity	-40~+85°C, 5%~95% RH Non condensing	
Dimension (L*W*H)	440*298*44mm	
Weight	4.7kg	5.1kg
Installation	Desktop, 1U/19" cabinet	
Certification & Warranty		
Lighting Protection	Protection level: IP40 Lightning protection: 6KV 8/20us IEC61000-4-3(RS):10V/m (80~1000MHz) FCC Part 15/CISPR22(EN55022): Class B IEC61000-6-2(Common Industrial Standard) IEC61000-4-9(Pulsed magnet field): 1000A/m IEC61000-4-10(Damped oscillation): 30A/m, 1MHz IEC61000-4-12/18(Shockwave): CM 2.5kV, DM 1kV IEC61000-4-4(EFT): Power cable:±4kV, Data cable: ±2kV IEC61000-4-16(Common-mode transmission): 30V, 300V, 1s IEC61000-4-2(ESD): ±8kV contact discharge, ±15kV air discharge IEC61000-4-6(Radio frequency transmission): 10V(150kHz~80MHz) IEC61000-4-8(Power frequency magnetic field):100A/m,1000A/m,1 to 3s IEC61000-4-5(Surge): Power cable: CM±4kV/DM±2kV, Data cable: ±4kV	
Certification	CCC, CE mark, commercial, CE/LVD EN62368-1, FCC Part 15 Class B, RoHS	
Country of Origin	Vietnam	
Warranty	2 Years	

ORDERING INFORMATION

Model	Description	Input Voltage
Q-IE-9600-24P-L3-4G-E	24-Port Gigabit Industrial Layer 3 Managed Switch with 4 × 1/10 Gb SFP+ uplinks, dual AC/DC inputs, fanless design	60 W
Q-IE-9600-48P-L3-4G-E	48-Port Gigabit Industrial Layer 3 Managed Switch with 4 × 1/10 Gb SFP+ uplinks, dual AC/DC inputs, fanless design.	60 W