# ENTERPRISE SWITCHES

## AGGREGATION

### DATA SHEET



## QN-SW-325

## SERIES

## PRODUCT OVERVIEW

- QN-SW-325 Switch Series provides robust Layer 2 switching and Layer 3 routing features to meet the diverse needs of enterprise/campus networks.

- Centralized device management options: Cloud-hosted Quantum Rudder Network and Services Controller (NSC), on-premises Rudder NSC, Device GUI/CLI, SNMP.

- Port density of 24/48 Gigabit ports and 4x25G SFP28 Uplink ports and 2x25G SFP28 Dedicated stacking port, non-blocking switching capabilities.

- The 24-Port switches support 1 to 8 ports PoE++ and 48-Port switches support 1 to 16 ports PoE++.

- On-device management ports include a dedicated console port, an Out-of-Band management port and a USB flash drive port for storage.

- Provides advanced enterprise-class features such as a verity of VLAN types (Data, Private, Guest (802.1x) auto-voice VLAN, Multicast TV VLAN), OSPF v2/v3, ISATAP, VRRP, DHCP server, Strom control and DoS prevention.

- Three-year limited liability manufacturer's warranty from day one.

## HIGHLIGHTS

- **Simplified network management.**
  Unified management stacks (Rudder, Network and Service Controller) to deploy, monitor and troubleshoot wired as well as wireless networks.

- **Reliable performance.**
  Delivers Stability, Scalability and Effortless handling of diverse workloads.

  - The switch supports a non-blocking architecture that provides from 348 Gbps to 396 Gbps of wire-speed switching capacity and from 258.9 Mpps to 294.6 Mpps of forwarding capacity, allowing it to handle a wide range of workloads.

  - For better network security, the switch supports multiple authentication methods, including 802.1x and MAC authentication. The switch provides identity-driven security and controls via granular Access Control Lists (ACLs).

- **Centralized network observability.**
  Dashboards and reporting logs for various network events.

# KEY SPECIFICATION

## QN-SW-325-Series

| FEATURE | SPECIFICATIONS | | | | | |
|---|---|---|---|---|---|---|
| **Communication Ports** | **48FP (Full PoE)** | **48P (PoE)** | **24FP(Full PoE)** | **24P (PoE)** | **48 (Non PoE)** | **24(Non PoE)** |
| 10/100/1000 Mbps RJ45 downlinks | 48 | 48 | 24 | 24 | 48 | 24 |
| 25G SFP28  uplinks | 4+2* | 4+2* | 4+2* | 4+2* | 4+2* | 4+2* |
| 25G SFP28  dedicated stacking  uplinks | 2* | 2* | 2* | 2* | 2* | 2* |
| Full Power Budget (Watt) | 1500 | 780 | 780 | 400 | - | - |
| Max PoE (802.3af) | 48 | 48 | 24 | 24 | - | - |
| Max PoE+ (802.3at) | 48 | 24 | 24 | 12 | - | - |
| Max PoE++ (802.3bt) (60W) | 16 | 8 | 8 | 6 | - | - |
| Max PoE++ (802.3bt) (90W) | 16 | 12 | 8 | 4 | - | - |
| **Management  Ports** | | | | | | |
| Console (RJ45) | 1 | 1 | 1 | 1 | 1 | 1 |
| Management (OOB) | 1 | 1 | 1 | 1 | 1 | 1 |
| Storage (USB Type A) | 1 | 1 | 1 | 1 | 1 | 1 |

| **Capacity** | **24 Ports** | **48 Ports** |
|---|---|---|
| Switching capacity | 348 Gbps | 396 Gbps |
| Forwarding rate | 258.9 Mpps | 294.6 Mpps |
| MAC address table | Max 32000 | Max 32000 |
| Packet buffer size | 12 MB | 12 MB |
| Active VLANs support | 4096 | 4096 |
| Maximum jumbo frame size | 9,216 bytes | 9,216 bytes |
| Link aggregation groups | Max 8 | Max 8 |
| Link aggregation ports per group | Max 8 | Max 8 |
| QoS priority queues | 8 per port | 8 per port |

### Quality of Service

- DiffServ (Differentiated services)
- Priority queue
- ACL mapping to priority queue
- Flow mirror, 802.1p Support
- Flow redirection
- Single Rate Three Color Marker (srTCM)
- Two Rate Three Color Marker (trTCM)
- QoS based on classification (Based on IP, MAC and VLAN)

- Strict priority support
- Traffic shaping/policing
- WRR support
- SP+WRR
- Rate limiting (Based on per port and per queue)
- Class map defines traffic flow with ACLs or support for network traffic management
- Policy map & route MAP to define the action for a set of classified inbound traffic

*Dedicated stacking ports can be configured as uplink ports.

## Security

| | |
|---|---|
| RADIUS,  TACACS+ | MACSec |
| Port security | Role based access control |
| AAA (Authentication, Authorization, and Accounting) | 802.1x authentication (Port Based, MAC Based, Web Based) |
| ACL (Based On IP, Port, Protocol, MAC, Time Based) | Management ACL |
| IP source guard | DoS prevention |
| Protected port | Secure copy (SCP) |
| ARP inspection | Kerberos,  SSL |

## Multicast

| | |
|---|---|
| Internet Group Management Protocol -IGMP v1/v2/v3 | Multicast Listener Discovery- MLD v1/V2 |
| IGMP snooping | MLD snooping |
| PIM-SM/SSM | Multicast TV VLAN |
| PIM-SMv6 | MVR (Multicast VLAN registration) |

## Layer 2

| | |
|---|---|
| Port Tagging/untagged | BPDU guard |
| MAC based VLANs | GVRP |
| Private VLAN | LLDP/LLDP MED |
| Subnet based VLAN | RADIUS assigned VLAN |
| Auto MDI/MDIX | Link aggregation (Ether Channel) |
| Loopback detection | Link Aggregation Control Protocol (LACP) |
| Port isolation | Port mirroring (Port, ACL, VLAN Based) |
| Root guard | Default VLAN |
| Guest VLAN | Auto voice VLAN |
| Energy Efficient Ethernet (EEE) | Green Ethernet |
| Link flapping detection | Flow control |
| STP/RSTP/MSTP | Native VLAN |
| QinQ (802.1Q) | Loop guard |

## Layer 3

| | |
|---|---|
| IPv4 and IPv6 dual stack | IPv6 prefix list |
| Intra-Site Automatic Tunnel Addressing Protocol (ISATAP) | IP source guard |
| Policy Based Routing (PBR) | DHCP server |
| ARP table (Static / Dynamic learning) | DHCP relay |
| DHCP Client | IPv6 NDRA (Neighbor Discovery Router Advertisement) |
| ICMP redirect & ICMP unreachable | Duplicate Address Detection (DAD) |
| IPv6 SLAAC (Stateless Address Auto configuration) | IPv6 ND |
| ARP-Proxy | DHCP Option 82, 66, 67 |

## Layer 3 Routing

| | |
|---|---|
| Static routing (IPv4, IPv6) | Inter-VLAN routing |
| Routing Information Protocol, version 2 (RIPv2) | OSPFv2/v3 ( Open Shortest Path First ) |
| Border Gateway Protocol (BGP) | |

## High Availability

- Stacking (Up-to 8 members)
- Equal-Cost Multi Path (ECMP)
- Storm control (Broadcast, Multicast, Unicast)
- Ring Redundancy Protocol (RRP)
- Virtual Router Redundancy Protocol (VRRP)

## Management

- Local GUI
- Industrial standard CLI
- Telnet support
- Storage & File management with USB
- TFTP support
- SNMP v1/v2c/v3
- SNTP
- Manual/schedule reboot
- Management: RUDDER (Controller)/Standalone
- SPAN/RSPAN
- SSHv1/v2
- Firmware auto-install support
- Syslog server
- RMON (All 4 Groups 1,2,3,9)
- sFlow

## Standard Compliance

### IEEE Standards Compliance

- 802.1AB LLDP/ LLDP-MED
- 802.1D MAC bridging
- 802.1p Mapping to priority queue
- 802.1s Multiple Spanning Tree (MST)
- 802.1w Rapid Reconfiguration of Spanning Tree (RSTP)
- 802.1x Port-based Network Access Control (PNAC)
- 802.3 Carrier Sense Multiple Access/Collision Detection (CSMA/CD)
- 802.3ab 1000Base-T
- 802.3 10Base-T
- 802.3ad link aggregation (Dynamic and Static)
- 802.3ae 10 gigabit Ethernet
- 802.3at Power over Ethernet Plus
- 802.3u 100Base-TX
- 802.3x flow control
- 802.3z 1000Base-SX/LX
- 802.3 MAU MIB (RFC 2239)
- 802.1Q VLAN tagging
- 802.3az Energy Efficient Ethernet
- 802.3af Power over Ethernet

## Monitoring and Troubleshooting

- Errdisable detection and recovery
- Device temp/PSU/FAN/status display & alarm
- Virtual cable test
- ICMPv4/v6
- Traceroute
- CPU Utilization
- User operation logs
- Management logs, alarms
- DDM (Digital Diagnostic Monitoring)
- UDLD (Unidirectional Link Detection)

## Environment

- Operating temperature: -5°C (23°F) to 65°C (149°F)
- Humidity: 5% ~ 95% non-condensing
- Storage temperature: -40°C (-40°F) to 70°C (158°F)
- MTBF (at 25°C ): 20,06,095 Hours

## Packaging Content

- Switch with type D power cord with rack mounting kit

## Certification & Compliances

| | |
|---|---|
| Regulatory | FCC |
| Standard | IEC-60950 |
| Environmental | RoHS |
| | CE |

## ORDERING INFORMATION

| Part Number | Description |
|---|---|
| QN-SW-325-24 | Networking Switch, 24×1 GbE ports with 4x25 GbE SFP28 Uplink ports and 2x25 GbE SFP28 dedicated stacking port, Includes cloud controller license and 3 years online activation warranty. |
| QN-SW-325-48 | Networking Switch, 48×1 GbE ports with 4x25 GbE SFP28 Uplink ports and 2x25 GbE SFP28 dedicated stacking port, Includes cloud controller license and 3 years online activation warranty. |
| QN-SW-325-24P | Networking Switch, 24×1 GbE PoE ports with 4x25 GbE SFP28 Uplink ports and 2x25 GbE SFP28 dedicated stacking port, 1-8 PoE++ Ports, 400 Watts Full Power Budget, Includes cloud controller license and 3 years online activation warranty. |
| QN-SW-325-24FP | Networking Switch, 24×1 GbE PoE ports with 4x25 GbE SFP28 Uplink ports and 2x25 GbE SFP28 dedicated stacking port, 1-8 PoE++ Ports, 780 Watts Full Power Budget, Includes cloud controller license and 3 years online activation warranty. |
| QN-SW-325-48P | Networking Switch, 48×1 GbE PoE ports with 4x25 GbE SFP28 Uplink ports and 2x25 GbE SFP28 dedicated stacking port, 1-16 PoE++ Ports, 780 Watts Full Power Budget, Includes cloud controller license and 3 years online activation warranty. |
| QN-SW-325-48FP | Networking Switch, 48×1 GbE PoE ports with 4x25 GbE SFP28 Uplink ports and 2x25 GbE SFP28 dedicated stacking port, 1-16 PoE++ Ports, 1500 Watts Full Power Budget, Includes cloud controller license and 3 years online activation warranty. |