QUANTUM
RUDDER®
Network and Services Controller

# HARDWARE CONTROLLER
# QN-RR-400
## DATA SHEET

# Product Overview

- o Unified Management Platform to manage entire networking stack of Wi-Fi, Switching, Gateways, and VPN.
- o QN-RR-400 provides ease of administration to manage and monitor multi-site heterogeneous networks.
- o Micro services-driven architecture to provide resilient and scalable architecture.

# Features

## Graphical Dashboards

It provides comprehensive, APIs that enable applications configuration and real-time monitoring of Quantum Networks devices. Build separate dashboards for individual administrators. The dashboard provides a summary of events occurring on Quantum Networks devices. It gives summarize detail of total sites, devices information, connected clients and critical alarm, and warning if any.

## Multi-tier Tenancy

The multi-tier hierarchy provides flexibility to service providers to allow administrators and operators to manage, create and reuse.

## Administrative Dashboard

A controller dashboard is a platform that reduces the time required to support and configure large-scale networks. Consistent menus plus consolidated and streamlined navigation shortens time to perform routine tasks such as Access Point, Switch configuration. The administrator can view health and traffic analysis, network alerts and statistics.

## Application Traffic and Guest Dashboard

The Traffic Dashboard offers a consolidated overview of application usage, presenting detailed information with graphical representations for a selected site within specified date parameters.

On the other hand, the Guest Dashboard provides a consolidated summary of total authentications, bandwidth usage, and other relevant details, offering graphical views for the selected site specifically for the current date

QN-RR-400 on premise Hardware Rudder Controller is a network management user interface for Deploying, Monitoring, Managing and Troubleshooting Access Points, Switches and Gateway devices.

## Scalability, Reliability

QN-RR-400 supports SSL certificate to provide secure, encrypted communications between Access Point / Switches / Gateway.

## Role-based Administration

Role-based access control with pre-grouped administration permissions makes common roles easier to set up. Users can define read-only or modify permissions that apply across zones, add new administrator profiles and set permissions. It allows the administrator to access QN-RR-400 and site management such as QIM.

## Partner Domain (MSP)

The Partner domain enables operators to separate tenants with their own unique set of configurations, profiles, and system object which are not shared with other tenants. It creates a wall between tenants to ensure privacy and alleviate operational headaches associated with tenant management. Also, service providers can personalize the administrative dashboard for their tenants with unique logos and text.

## External Integrations

QN-RR-400 supports external integrations using industry standard protocols like TR-069, SNMP v2/v3 and API.

# Network Health Monitoring and Troubleshooting

## AP, Switch and Gateway Health

Keep an at-a-glance summary of the entire network health through an intuitive dashboard, designed to allow drill down for more information on the go.

## Client Health

Client connection diagnostics for wireless client's speeds and simplifies troubleshooting and client problem resolution. The administrator can focus on a specific client device and its connection status with this troubleshooting tool. An intuitive interface tracks and monitors the progress of the user's connection through 802.11stages, EAP authentication, RADIUS, captive portal redirects, encryption key setup, DHCP, and roaming.
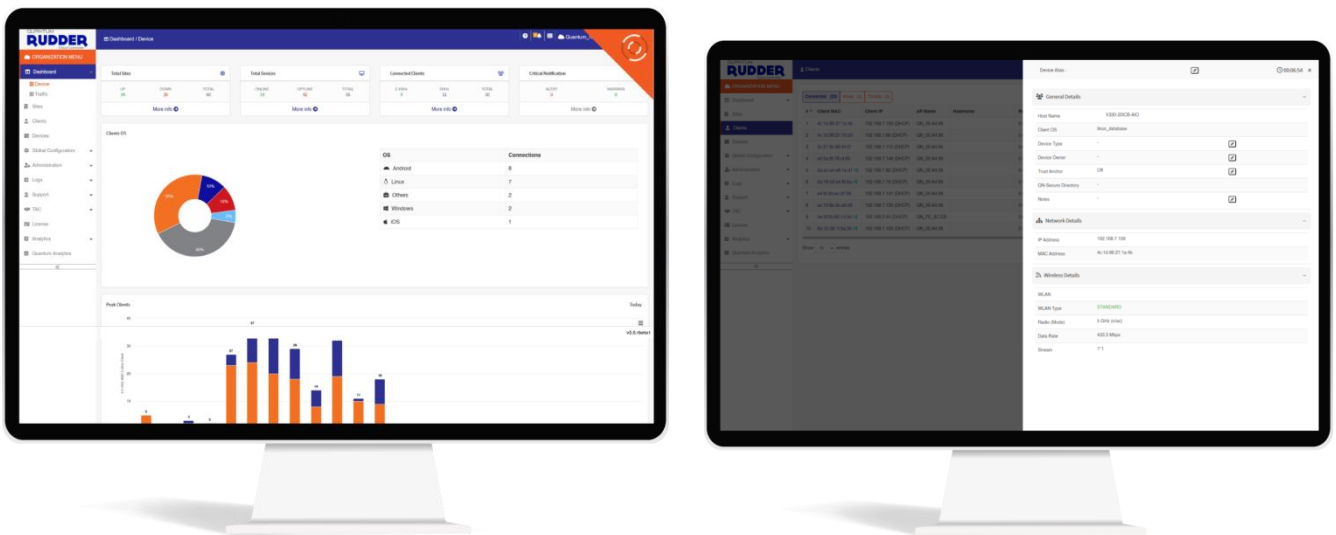


## Reporting

Enhance reporting structure to provide the data on daily, weekly and monthly schedule which can be export or send to the administrator. The administrator can check on real-time client performance metrics, connections, and traffic, track client SNR (signal-to-noise ratio) and data rate, as well as historical traffic, to overcome troubleshoot connectivity problems.

## Configuration and Login Audits

Administrator can keep the logs of activities and login records with time duration.

## Monitoring

Track individual Wi-Fi client records such as Hostname, IP Address, uptime, wireless details, bandwidth, noise level, signal strength, speed, association history, and device name.

# Highlights

## Quantum Secure

Quantum Secure jumbles WPA/WPA2 key, pre-configured MAC address and user password to allot an automated randomized passkey and provide access for the device. This device access cannot be used on another device, even by the same user. It ensures client security even in case of a lost device or password compromise.
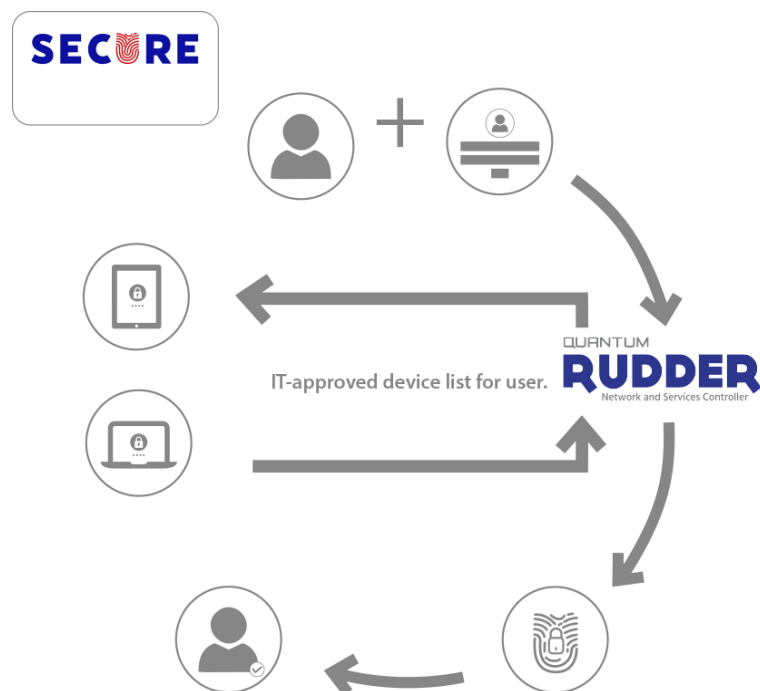


## Quantum Secure+

Quantum Secure + allows users to get authenticated before getting access to the Internet through the Internet Browser. Every user will get web-authenticated by using individual user credentials. Once the user discovers the WLAN (SSID) on their wireless device or laptop or desktop or any other device, they will get a popup to enter the required login information.

## Quantum Guest Pass

Provides guest passes for the guest users to allow temporary access. The guest users will get authenticated to access by the administrator.

# Highlights

## Quantum Services

Q-services collectively revolutionize network management, ensuring unwavering reliability, top-tier security, and optimal performance within the quantum technology landscape. These solutions are designed to deliver secure, efficient, and high-performance network operations, providing businesses with state-of-the-art capabilities.



## Wi-Fi Mesh Management

Mesh Wi-Fi is a Wi-Fi system built to eliminate dead zones and to provide uninterrupted Wi-Fi throughout the entire area. Mesh features enable devices in the network to have faster speeds, greater coverage, and a more reliable connection. Mesh Wi-Fi is faster and more efficient at delivering Wi-Fi signals.

## Theft Protection

Software-based theft protection functionality protects assets from misuse. Access Point will be locked for deployment in any other network until decommissioned from the existing network.



## URL filtering

URL filtering for wireless and gateway clients allows businesses to create and enforce access policies that protect users from inappropriate and harmful websites while maintaining access to allowed URLs. Policies are granularly applied at a wireless LAN or user group level with override whitelist/blacklist options.

# Management

| Feature | Description |
|---|---|
| Device Management | o  Unified controller for Quantum Access points (Wi-Fi 5 and Wi-Fi6), Switches, Gateways and services<br>o  Super scalable and resilient architecture.<br>o  High availability/Elastic Clustering |
| Device Enrollment | o  Manual on boarding<br>o  Auto Enrollment<br>o  Pre provisioning<br>o  Controller Auto Discovery/Authentication |
| Device Monitoring | o  Monitor device status (Up/Down)<br>o  Monitor device resources<br>o  Integrated with external monitoring via SNMP/API<br>o  Various analytics dashboard for device insights |
| Client Monitoring | o  Monitor clients across your entire network stack on wired and wireless network<br>o   Classify device type using various classification modes |
| Logging / Reporting | o  Centralized logging and reporting of<br> o  Device events<br> o  Client events<br> o  Radio resource events<br> o  Security events<br> o  Administrator events<br>o  Logs can be archived to external syslog server<br>o  User traffic logs can be stored for two years as per TRAI<br>o  Compliance standards |
| Network Configuration | o  Operating modes<br>o  Gateway to inter connect private LAN and public /WAN internet<br> o  Bridge mode<br> o  Out of Band |
| Gateway Features | o  DHCP<br> o  Multiple DHCP servers for multiple VLAN segments<br> o  Configure DNS servers<br> o  DHCP MAC reservation<br><br>o  Routing<br> o  Network address translation (NAT)<br> o  Static routing<br><br>o  Ethernet port<br> o  Manage WAN/LAN ports<br> o  IP address management (Static / Dynamic)<br> o  VLAN tagging<br> o  DDNS support (Any DNS / No IP ) |

| | |
|---|---|
| Network Device Monitoring (Non Quantum) | o Supports monitoring of non-Quantum devices via<br>   o Heartbeat<br>   o API<br>   o ICMP Ping |
| QN-RR-400 Hardware Appliance Network Management | o Support up to 4500 devices (appliance dependent) |
| | o Device management options<br>   o SSH/SSL<br>   o Command Line Interface<br>   o On device web GUI<br>   o Reliability / Resilience<br>   o High availability cluster |
| | o Disaster Recovery<br>   o Back up on Rudder cloud controller (Based on requirement) |
| | o Protocol supported<br>   o SSHv2 / SNMP v1/v2/v3<br>   o RADIUS<br>   o TACACS+<br>   o NTP |

# Services

| Feature | Description |
|---|---|
| Captive Portal Management | o Internal and External captive portal to authenticate unauthorized users<br>o Authenticate enterprise users, guest users and BYOD users<br>o Collect user's profile and authentication methods with authentication server<br>o Rapidly design integrated captive portal using templates<br>o Customization / specific branding of captive portals<br>o Customizable user on boarding workflow |
| User Authentication, Authorization and Accounting | o Integrated AAA/RADIUS server<br>o Proxy / forward traffic to external AAA/RADIUS servers<br>o Integrated with various user directory options<br>    o QIM (Quantum Identity Management )<br>    o Microsoft active directory<br>    o LDAP<br>    o Gsuite<br>    o Oauth |
| Internet Access QoS | o Enter QoS on user group, user level<br>o Enforce fair usage<br>o Customized access plans for limiting Bandwidth, Throughput, Quota (data), Time<br>o Content filtering |
| Security | o Provision for access to<br>    o Internet only<br>    o Internet and private applications<br>    o Whitelist devices<br>       Black list devices |
| BYOD | o Permit self enrollment of devices through customizable BYOD workflow<br>o Enforce BYOD policy |
| Analytics | o Top users<br>o Top applications |
| Application Integration | o PM WANI |

# Access Point Management

| Feature | Description |
| --- | --- |
| Load Balancing | o   Load balance users between radios / Devices |
| Roaming | o   Support 802.11 roaming/fast roaming standards |
| WAN QoS | o   Provision QoS based on<br>    o   User Type<br>    o   Traffic type (voice/video/data) |
| QoS Parameter | o   Data rate, data quota traffic prioritization<br>o   Assign QoS for user, user group subnet or IP address |
| WLAN Security | o   Support various Industry Standard authentication methods.<br>o   Refer to AP datasheet for supported methods.<br>    o   Quantum Secure<br>    o   MFP(management frame protection)<br>    o   WIPS/WIDS for various attack signatures)<br>o   Assign guest VLAN to guest traffic.<br>o   Integrate with Wi-Fi service management platform for advanced captive portal/guest management<br>o   Integrate with various user directories.<br>o   QIM, RADIUS(Integrated), RADIUS (External), Microsoft AD, Gsuite and Oauth |
| Access Control List | o   Implement dynamic ACL Policies<br>o   Block traffic by application<br>o   Block malware, phishing and spam domain |
| Secure user Authentication | o   Quantum Secure, Quantum Secure+<br>o   Quantum Guest Pass |
| Switch Management | o   Manage through Quantum  Hardware Rudder Controller management console<br>o   Direct access to configuration via remote CLI, console or SSH<br>o   Port settings and PoE control<br>o   DHCP snooping, Supports IPv4/IPv6,<br>o   Layer 2/Layer 3 with RIPv2 & OSPF features<br>o   Create and manage stacks |
| Gateway Management | o   Manage multiple site gateway devices from a single console<br>o   Secure access from anywhere using Quantum  Hardware Rudder Controller Multi-tier administration<br>o   Ease of access profiles deployments on multiple gateways<br>o   Notification / alert on ISP connections states |
| Mobile application – Quantum ACE | o   Manage multiple Access Points<br>o   Monitor status of sites, APs, client devices, WLAN<br>o   Create and configure new SSID<br>o   Manage Quantum guest authentication<br>o   Supports zero-touch provisioning for AP, Switch<br>o   Supported platform iOS and Android |

# Hardware Specification

| Parameters | |
|---|---|
| Appliance type | Hardware |
| Managed device | Up to 4500 |
| WLAN | Up to 4000 |
| QIM | Yes |
| High availability | Yes |
| Gateway extension | Yes |
| **Interfaces and Indicators** | |
| 10/100/1000BASE-T Ethernet ports | 8 |
| 1 G SFP port | 1 |
| 10G SFP+ ports | 4 |
| USB ports | 2 x USB 3.1 |
| Management port | 1 |
| Console port | 1 x Micro USB / 1 x RJ45 Serial |
| **Physical** | |
| Dimensions (W x H x D) | 430 (W) x 44 (H) x 400 (D) mm |
| Weight | 6.5 kg (14.3 lbs) |
| **Environmental** | |
| Operating temperature | 0~ 40°C (32~104°F) |
| Storage temperature | -20~80°C (-4~176°F) |
| Humidity/Storage Humidity | 0 to 90% @90°C, non-condensing |
| **Power Supply** | |
| Power Source | 1+1 Hot Swappable Redundant ATX 280W PSU |
| Maximum power consumption | 280W |
| Input voltage range | 100 V AC to 240 V AC |
| Input frequency | 47-63 Hz |

# Ordering Information

| Parameter | Description |
|---|---|
| QN-RR-400<br>Device License | o   Access Point management license<br>o   Switch management license<br>o   Gateway management license |
| QN-RR-400<br>Extensions | o   Quantum Identity Manager<br>o   Quantum Service Management Platform<br>o   QPASS-Password less authentication |