QUANTUM® NETWORKS

PRODUCT OVERVIEW

o   The Industrial switch series provides a versatile and robust Layer-2 switching and Layer-3 routing line of industrial-grade switches designed to meet the demands of harsh and challenging environments.

o   Industrial switches are designed to operate under extended temperature conditions. They provide continuous uptime, manageability and operational efficiency.

o   Choose from remote web-based management (Cloud-Hosted Quantum Rudder Network and Service Controller (NSC)), secure on-site control (On-Premises Rudder NSC), direct configuration access (Device GUI/CLI) or centralized monitoring (SNMP).

o   PoE budget options to power advanced devices with the option of PoE /PoE+ per port.

o   Port density of 8/24/48x1 Gigabit ports and 2/4x10/1 GbE SFP/SFP+ uplink/stacking interfaces with cut -through, wire speed, non-blocking switching capabilities.

o   On-device management ports include a dedicated console port and a USB flash drive port for storage. Additionally, the switch has a DIN Rail mounting facility.

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

HIGHLIGHTS

o   **Simplified network management.**
    Industrial Switch provides easy configuration and simplified operational manageability to deliver advanced and secure multi-services over industrial networks.

o   **Centralized network observability.**
    The Network Controller provides configurable reporting and analytics to manage large user populations and expedite troubleshooting. Advanced search and sorting capabilities make network management more efficient.

o   **Reliable performance.**
    Delivers stability, Scalability and Effortless handling of diverse workloads.

    o   The switch supports a non-blocking architecture that provides up to 176 Gbps of wire-speed switching capacity and up to 131 Mpps of forwarding capacity, allowing it to handle a wide range of workloads.

    o   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).

KEY SPECIFICATION

Communication Ports	Specification					
Model	Gigabit Ethernet RJ45 Downlinks	10G/1G Fiber Uplinks	PoE Budget (Watt)	Max PoE (802.3af)	Max PoE+ (802.3at)	Max PoE+ (802.3bt)
48 Port						
QN-IS-225-48HP-4SFPP-R	48	4	400	24	12	-
QN-IS-225-48-4SFPP-R	48	4	-	-	-	-
24 Port						
QN-IS-225-24P-4SFPP-R	24	4	400	24	12	-
QN-IS-225-24P-2SFPP-D	24	2	400	24	12	-
QN-IS-225-24-4SFPP-R	24	4	-	-	-	-
QN-IS-225-24-2SFPP-D	24	2	-	-	-	-
8 Port						
QN-IS-225-8 FPU	8	2	240	8	8	2
QN-IS-225-8FP	8	2	240	8	8	-
QN-IS-225-8	8	2	-	-	-	-
Management Ports	**48 Port**		**24 Port**		**8 Port**	
Console RJ45	1		1		1	
Storage (USB Type A)	1		1		1	
Capacity	**48 Port**		**24 Port**		**8 Port**	
Switching capacity	176 Gbps		128 Gbps* (Calculate as max. port speed)		56 Gbps	
Forwarding rate	131 Mpps		95 Mpps* (Calculate as max. port speed)		42 Mpps	
MAC address table	16K		16K		16K	
Active VLAN support	4096		4096		4096	
IPv4 route	480		480		480	
IPv6 route	120		120		120	
Maximum jumbo frame size	9,216 bytes		9,216 bytes		9,216 bytes	
Link Aggregation groups	Max 32		Max 32		Max 32	
Link aggregation ports per group	Max 8		Max 8		Max 8	
Qos Priority queues	8 per port		8 per port		8 per port	
ACL	1024		1024		1024	
Quality of Service						
Port and VLAN based QoS (802.1P)			Single Rate Three Color Marker (srTCM)			
QoS based on IP/MAC/Port			Two Rate Three Color Marker (trTCM)			
Traffic shaping			Strict priority support			
DiffServ			Weighted Round Robin (WRR) support			
Class-map & Policy-map			Queue assignment based on DSCP & CoS			

QoS aggregate-policer	Traffic classification based on COS/DSCP
QoS Mapping on Queue	

Layer 3

ARP, Gratuitous ARP	DHCPv6 client
IPv6 ND	IPv4 Interface
IP source guard	IPv6 Interface
DHCP relay	VRRP
DHCP server	Route-only support
ISATAP	

Layer 3 Routing

Inter-VLAN routing	VRF support
RIPv2	IPv6 unicast routing
OSPFv2/v3	IPv4 static routing, IPv4 host routing
IPv6 static routing, IPv6 host routing	Policy based routing

Layer 2

Forwarding rate	LLDP/LLDP MED
Switching throughput	RRP (Ring Redundancy Protocol)
STP, RSTP	Port mirroring (Port, ACL, VLAN-Based)
MSTP	BPDU filtering
VLAN (MAC, Protocol, Port based)	Ping/TraceRoute/ICMPv6
Loopback detection	Storm control (Broadcast, Multicast, Unicast)
Auto MDI/MDIX	GVRP
BPDU guard, root guard	Energy Efficient Ethernet, Green Ethernet
IGMP/IGMP snooping v1/v2/v3	

Security

ACLs	Downloadable ACL
DHCP snooping	Dynamic ACL
802.1x authentication	Secure copy (SCP)
MAC authentication	DoS protection
Radius/Tacacs/Tacacs+	Local username/password
AAA, SSH	Protected ports
ARP inspection (DAI & SAI)	RA guard

Management

Local GUI	NetConf/RestConf
Industrial standard CLI	NTP authentication
Telnet support	SPAN/RSPAN
Storage & File management with USB	SSHv1/v2
TFTP support	Firmware auto install support
Dual Flash Images OS	Syslog server
SNMP v1/v2c/v3	RMON (All 4 Groups 1,2,3,9)

SNTP	sFlow
Management: RUDDER (Controller)/Standalone	REST API
Manual/schedule reboot	

Standard Compliance

IEEE Standards Compliance

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

Monitoring and Troubleshooting

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

Environment

Operating temperature	-40°C to 85°C
Humidity	5% ~ 95% non-condensing
RoHS	Compliant
IP rating	IP40
Power consumption	10W Max
Dual redundant power input	DC 24-48V
Input voltage	PoE DC48-58V (Switch required DC 24-48V)
Surge protection	Yes

Certification & Compliances

Regulatory	FCC
	BIS
	TEC
	Shock Drop Vibration
Environmental	CE
	RoHS
	IP40

For detailed information on certifications apply to each model within the series mentioned in this datasheet, please email us at sales@qntmnet.com.

ORDERING INFORMATION

Part Number	Description
QN-IS-225-48HP-4SFPP-R	Industrial Switch,48×10/100/1000 Base T ports, 4x10G Fiber uplinks, 400 watts power budget, Rack mount, includes 3 years online activation warranty.
QN-IS-225-48-4SFPP-R	Industrial Switch, 48×10/100/1000 Base T ports, 4x10G Fiber uplinks, Non-PoE, Rack mount, includes 3 years online activation warranty.
QN-IS-225-24P-4SFPP-R	Industrial Switch, 24×10/100/1000 Base T ports, 4x10G Fiber uplinks, 400 watts power budget, Rack mount, includes 3 years online activation warranty.
QN-IS-225-24-4SFPP-R	Industrial Switch, 24×10/100/1000 Base T ports, 4x10G Fiber uplinks, Rack mount, includes 3 years online activation warranty.
QN-IS-225-24P-2SFPP-D	Industrial Switch, 24×10/100/1000 Base T ports, 2x10G Fiber uplinks, 400 watts power budget, Din Rail Mount, includes 3 years online activation warranty.
QN-IS-225-24-2SFPP-D	Industrial Switch, 24×10/100/1000 Base T ports, 2x10G Fiber uplinks, Din Rail Mount, includes 3 years online activation warranty.
QN-IS-225-8FPU	Industrial Switch, 8×10/100/1000 Base T ports, 2x10G Fiber uplinks,1-2 PoE++(60W) Ports 240 watts power budget, includes 3 years online activation warranty.
QN-IS-225-8FP	Quantum Networks IS-225 Series Industrial Switch, 8×10/100/1000 Base T ports, 2x10G Fiber uplinks, support for 240 watts power budget, includes 3 years online activation warranty. Does not include power supplies, needs to be ordered separately.
QN-IS-225-8	Industrial Switch, 8×10/100/1000 Base T ports, 2x10G Fiber uplinks, includes 3 years online activation warranty.

Accessories	Description
QN-IS-PSU-24	Quantum Networks Industrial Power supply for Industrial switch with input voltage 100~264VAC, Output Voltage 12VDC, Power Budget 24 watts, Din Rail Mounting.
QN-IS-PSU-120	Quantum Networks Industrial Power supply for Industrial switch with input voltage 100~264VAC, Output Voltage 48VDC, Power Budget 120 watts, Din Rail Mounting.
QN-IS-PSU-240	Quantum Networks Industrial Power supply for Industrial switch with input voltage 100~264VAC, Output Voltage 48VDC, Power Budget 240 watts, Din Rail Mounting.
QN-IS-PSU-400	Quantum Networks Industrial Power supply for Industrial switch with input voltage 100~264VAC, Output Voltage 48VDC, Power Budget 400 watts, Din Rail Mounting.