

ITS EXPRESS

A **HN** HARDENED NETWORKS BRAND

New
Flex-Technology



HN-8004-16 V3 Overview

ITS Express/ Hardened Networks switches have been specifically engineered to handle the challenging demands of extreme environmental conditions and 8k multi-cast high bandwidth video applications.

A vast array of redundancy protocols combined with dual redundant power capabilities ensure maximum uptime for mission-critical applications.

Hardened Networks provides state-of-the-art designed switches, which all feature next-generation ASICs, robust backplanes, and dependable firmware. This gives you the “best-of-breed” in environmentally challenging switch products.

- Our exciting new Flex-Technology revolutionizes speed upgrades in hardened switches!

Now you can purchase switches with any higher speed SFPs 10gig /2.5 gig and connect them to your existing slower speed 100 or 1000 optics without requiring like optics. Make your upgrade path fast, simple, and pain-free!

Ask your sales representative today!

- ▶ Exceeds NEMA TS-2 Specifications
- ▶ Hardened Full Layer 3
- ▶ OSPF/PIM/VRRP/BGP
- ▶ (4) 100/1000/2.5/10 Gb USFP+ (Ultra SFP+)
- ▶ (16) Copper Ports
- ▶ S-Flow network usage monitoring
- ▶ V3 Technology
- ▶ 192 GB Back-Plane
- ▶ Compact DIN- Rail or Shelf Mount

- Designed for routing and forwarding of area wide unicast and multicast video in extreme environments
- Exceeds NEMA TS TS-2 Specifications
- 4 USFP+ ports 100Mb/1000Mb/2.5Gb/10Gb (Ultra SFP+ ports)
- 16 copper ports 10Mb/100Mb/1000Mb TX
- Dynamic unicast routing protocols BGP, OSPF, and RIP
- Multicast routing SSM, PIM dense and sparse modes with RP and BSR capabilities
- Create loopback interfaces for stable routing operations
- Easy to configure web interface designed by ITS users, with a familiar CLI
- Multiple managing options: HTTP, HTTPS, SSH, Telnet, and Serial
- ESFP/USFP+ mix and match all speeds single or multi-mode, dual strand (LX,EX,ZX, ZR) or single strand fiber (BX, BR)
- Default profile includes RSTP and IGMPv2 snooping on VLANs
- Create redundant rings using STP/RSTP/MSTP (PVST+ or RPVST+ Cisco compatibility)
- Up or download configurations, script files, CLI Banners, public keys, and user profiles
- File transfer options include HTTP, TFTP, FTP, SCP, and SFTP
- Redundancy through dual firmware images and dual power inputs
- S-Flow network usage monitoring
- VeriPHY (advanced real-time copper cable testing)
- Optical monitoring with mapping capabilities

Switch Model	HN-8004-16
Physical Ports	
USFP+ 100Mb/1G/2.5GB/10GB Base-XSFP+	4
Copper TX 10Mb/100Mb/1000Mb Ports in RJ45 Auto MDI/MDIX	16
Technology	
Ethernet Standards	<ul style="list-style-type: none"> -IEEE 802.3 for 10Base-T -IEEE 802.3u for 100Base-TX and 100Base-FX -IEEE 802.3ab for 1000Base-T -IEEE 802.3z for 1000Base-X -IEEE 802.3x for Flow control -IEEE 802.3ad for LACP (Link Aggregation Control Protocol) -IEEE 802.1p for COS (Class of Service) -IEEE 802.1Q for VLAN Tagging -IEEE 802.1D for STP (Spanning Tree Protocol) -IEEE 802.1w for RSTP (Rapid Spanning Tree Protocol) -IEEE 802.1s for MSTP (Multiple Spanning Tree Protocol) -IEEE 802.1x for Authentication -IEEE 802.1AB for LLDP (Link Layer Discovery Protocol)
MAC Table	16k
Processing	Adaptive cut-through / store-and-forward
Priority Queues	8
TSN Protocols	IEEE 802.1AS, QAV, QAT
Packet Buffer	16 Mb
Flash Memory	1024 Mb
DRAM Size	8 Gb
Switch Properties	<ul style="list-style-type: none"> -Switching bandwidth: 192Gbps -Maximum number of available VLANs: 4093 -VLAN (802.1Q) with VLAN tagging -VLAN ID range : VID 1 to 4093 -IGMP multicast groups: 128 for each VLAN -Port rate limiting: user define -LLDP standard, enable ISDP for Cisco CDP compatibility -IP Subnet based VLAN, MAC based, and protocol based VLANs
Software Features	<ul style="list-style-type: none"> -Port loop protection feature -TOS/Diffserv supported -Unidirectional link detection UDLD feature -Quality of Service (802.1p) for real-time traffic -IGMP v1, v2, v3, v2 snooping -Multicast VLAN registration (MVR)

Software Features	<ul style="list-style-type: none"> -RSPAN VLAN configuration -Application-based QoS management -Port configuration, status, statistics, monitoring, and security port mirroring -DHCP server/client/relay -SNTP client with source interface designation
Security Features	<ul style="list-style-type: none"> -Advanced architecture including hardware based security measures -Port based network access control (802.1x) MAC-based authentication(802.1x), MAB bypass mode -VLAN (802.1Q) to separate and secure network traffic -Radius/TACACS+ centralized password management -SNMPv3 encrypted authentication and access security -Management access control and administration list for control of remote management -Port auto recovery configuration hot page -IP Source Guard, DHCP Snooping, Dynamic ARP Inspection -HTTPS / SSH encrypt management traffic for network security -DOS/DDOS auto prevention built throughout multiple levels -Selectable Management Access Control by protocol, disable Telnet, etc. - enable access by remote IP
Routing Protocols	<ul style="list-style-type: none"> -Unicast Routing <ul style="list-style-type: none"> •Static routing, Dynamic routing through BGP, OSPF •OSPF settable to RFC 1583 or RFC 2328 for routing domain compatibility -Multicast Routing <ul style="list-style-type: none"> •PIM-DM, SSM, PIM-SM as multicast router, RP, BSR or all at once -Routing Redundancy <ul style="list-style-type: none"> •VRRP RFC 2787
Network Redundancy	STP/RSTP/MSTP (PVST+ or RPVST+ Cisco compatibility)
RS-232 Serial Console Port	RS-232 in DB9 connector with console cable. 115200bps, 8, N, 1
LED Indicator	
Power Indicator (PWR)	Green : Power LED x 3
Ring Master Indicator (R.M.)	Green : Indicates that the system is operating in ITS-Ring Master mode
ITS-Ring Indicator (Ring)	<ul style="list-style-type: none"> -Green : Indicates that the system operating in ITS-Ring mode -Green Blinking: Indicates that the Ring is broken.
Fault Indicator (Fault)	Amber : Indicate unexpected event occurred

10/100/1000Base-T(X) RJ45 Port Indicator	-Green for port link/act -Dual color LED for speed indicator : Green for 1000Mbps, -Link light amber for 100Mbps (upper), and amber for 10Mbps (lower)
1G/10Gbase-X SFP Port Indicator	Green for port link and green flashing for activity
Fault Contact	
Relay	Relay output to carry capacity of 1A at 24VDC
Reset Button	<5 sec: system reboot; >5 sec: factory default
Power	
Redundant power input	Dual DC inputs 12-48VDC on 6-pin terminal block
Power Consumption (Typ.)	23 Watts
Overload Current Protection	Present
Reverse Polarity Protection	Present
Physical Characteristics	
Enclosure	IP-30, Aluminum
Weight (lb/g)	3.37lb/1530g
Dimension (W x D x H)	116.4 (W) x 170 (D) x 180 (H) mm (4.58 x 6.69 x 7.08 inches)
Environmental	
Storage Temperature	-40 to 90C (-40 to 194F)
Operating Temperature	-40 to 85C (-40 to 185F)
Operating Humidity	5% to 95% Non-condensing
Regulatory Approvals	
EMC	CE EMC (EN 55024, EN 55032), EN 50121-4 (compliant), FCC Part 15 B
EMI	EN 55032, CISPR32, EN 61000-3-2, EN 61000-3-3, FCC Part 15 B class A
EMS	-IEC/EN 61000-4-2 (ESD: Contact 8KV, Air 10KV) -IEC/EN 61000-4-3 (RS: 3V) -IEC/EN 61000-4-4 (EFT Power 2KV, Signal 2KV) -IEC/EN 61000-4-5 (Surge: Power 4KV, Signal 4KV) -IEC/EN 61000-4-6 (CS: 3V) -IEC/EN 61000-4-8(PFMF)
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-31
Vibration	IEC 60068-2-6
Safety	EN60950-1
MTBF	776,493 hrs
Warranty	5 Years



Other Solutions

Hardened Networks has created variety of high quality products to fit your needs. If you did not find what you needed in the HN- 8004-16 V3, please browse our other solutions.

Ethernet Switches



HN-8012-24 V3

- 4 Ultra Fiber Ports SFP+ 100Mb/1000Mb/2.5Gb/10Gb
- 4 Enhanced Fiber Ports SFP 100Mb/1000Mb/2.5Gb
- 16 Copper Ports 10Mb/100Mb/1000Mb
- 176 GBPS Back-Plane



HN-8042 V3

- 2 Ultra Fiber Ports SFP+ 100Mb/1000Mb/2.5Gb/10Gb
- 2 Enhanced Fiber Ports SFP 100Mb/1000Mb/2.5Gb
- 8 Copper Ports 10Mb/100Mb/1000Mb
- 96 GBPS Back-Plane



HN-8012-24+ V3

- 4 Ultra Fiber Ports SFP+ 100Mb/1000Mb/2.5Gb/10Gb
- 4 Enhanced Fiber Ports SFP 100Mb/1000Mb/2.5Gb
- 16 Copper Ports 10Mb/100Mb/1000Mb
- Two sets of bypass fiber ports
- 176 GBPS Back-Plane



HN-8042+ V3

- 2 Ultra Fiber Ports SFP+ 100Mb/1000Mb/2.5Gb/10Gb
- 2 Enhanced Fiber Ports SFP 100Mb/1000Mb/2.5Gb
- 8 Copper Ports 10Mb/100Mb/1000Mb
- Two sets of bypass fiber ports
- 96 GBPS Back-Plane

Communications



HN- MC-1000

- 10Mb/100Mb/1000Mbps Ethernet BASE-T/TX to SFP (MM or SM)
- Optical port supports 100Mb or 1000Mb full duplex data



HN- MC-100

- 10Mb/100Mbps Ethernet BASE-T/TX to SFP (MM or SM)
- Flexible power 18-46VAC/12-60 VDC



HN- VC-100

- High Speed VDSL-2 Technology
- 10Mb/100Mbps Ethernet BASE-T/TX to a pair of copper cables
- Flexible power 18-46VAC/12-60 VDC

We here at Hardened Networks are proud to carry products that are certified by:



Express Supply, Inc.

www.expressupply.net

(407) 497-8614