Hunter-12PL2
12-Port Military Gigabit Managed L2 switch

The Hunter military series provides 12 ports of Gigabit L2 Ethernet connectivity in a compact wall mount form factor for a wide variety of extended military applications. This switch is a high performance L2 managed switch, providing wide temperature operation with PoE and Fiber over SFP. It is designed around to the highest standards required by military application and has passed required certifications.

It runs the Linux OS with built-in AES based Encryption, on a high-performance ARM Cortex A9, with integrated switching function, to provide a highly scalable architecture that allows for addition of functions in a very flexible manner. It can be managed with powerful open source management tools like called Zabbix, as well as a user-friendly, modern web based GUI.

It supports a power budget of up to 240W for PoE/PoE+, shared across upto 8 of the 12 ports, and is ideal for connecting PoE-powered Edge devices such as IP cameras, phones, wireless access points, sensors, and more. The switch provides the unique ability to drive 30W of power upto 250 meters.

Highlights

- Built for harsh environments and temperature ranges (-40°C to +70°C)
- Hardened for vibration, shock and surge, and electrical noise immunity
- Supports up to 8 PoE/PoE+ ports with power budget of 240W, with PoE/PoE+ upto 250 meters
- Full Gigabit Ethernet with AES Encryption for secure military communications
- IEEE 1588v2 Precision Time Protocol Hw-Based Transparent clock
- CE/FCC
- MIL-STD-810G certified for military application

Salients	Highlights
Designed to military needs	Built for harsh environments and temperature ranges (-40°C to +70°C)
	Fanless, convection-cooled with no moving parts for extended durability
	Hardened for vibration, shock and surge, and electrical noise immunity
	Covers a wide range of Power over Ethernet (PoE) application requirements
High-density industrial Power over Ethernet (PoE)	Supports up to 8 PoE/PoE+ ports with power budget of 240W, with PoE/PoE+ upto 250 meters
	Controls costs by limiting wiring, distribution panels, and circuit breakers
	Reduces equipment needs, thus requiring less space and reducing heat dissipation
	Enables ready-to-use PoE devices, such as IP phones, cameras, and wireless access points
Full Gigabit Ethernet with comprehensive Industrial communication functions	Provides secure access for new high-speed applications in the industrial space
	Packs up to 12 ports of Gigabit Ethernet - upto 4 Gigabit Small Form-Factor Pluggable (SFP) uplinks, upto 8 Gigabit copper RJ45 ports, supporting PoE/PoE+ ports
	Delivers multiple rings and redundant ring topologies for new network configurations, supporting advanced protocols, such as ERPS, STP, RSTP and compatible rings
	IEEE 1588v2 Precision Time Protocol Hw-Based Transparent clock
User friendly web based GUI	Allows easy configuration and monitoring
	Eliminates the need for more complex terminal emulation programs
	Reduces the cost of deployment
Certifications tailored to multiple vertical segments	CE/FCC
	MIL-STD-810G certified for military application

Power specifications

Model	Hunter-12PL2-8PoE-4SFP
Input Voltage range	45-57 VDC for PoE and 51-57 VDC for PoE+, >=52 VDC recommended
Maximum input current	Max. 3.8 A @ 45 VDC for PoE and Max. 5.7 A @ 51 VDC for PoE+
Power consumption	Max. 290 W @ 51 VDC
Power budget (PoE)	240W
Power	Dual power
Connector	MIL-C-26482 10P

Performance parameters

Forwarding rate	Line rate for all ports and all packet sizes
Number of Queues	8
MAC Table Size	16K
Packet Buffer Size	1.5 MB
Jumbo Frame Size	9216 Byte
VLAN Table	4096
MAC-Based VLAN	512
VLAN ID Range	VID 1 to 4094
Trunk Group	4
Static IGMP Groups	128
Dynamic IGMP Groups	1024
Spanning Tree Protocol instances	128
Access control lists (PACL/VACL/RACL)	1.5K

Software features

Layer 2 switching	IEEE 802.1, 802.3 standard, NTP, UDLD, LLDP, unicast MAC filter, LACP, Private VLAN, Auto Surveillance VLAN, voice VLAN, VLAN double tagging (QinQ), MSTP, GARP, GMRP, GVRP, SNMPv1/v2c/v3, SNMP Inform, ICMP, Telnet, SSH, DHCP Server/Relay/Client, DHCP Option 66/67/82, BootP, RARP, TFTP, SMTP, SMTP (Gmail), RMON, HTTP, HTTPS, Syslog, LLDP, 802.1x, RSTP, Port and VLAN mirroring (RSPAN), OpenFlow v1.3 support, Digital Diagnostic Monitoring (DDM) MLD snooping v1, v2
Quality of Service (QoS)	Rate limit, auto QoS, ingress policing, egress queuing and shaping

Software features	
Multicast	IGMPv1, v2, v3 snooping, IGMP filtering, IGMP querier
Security	Port security, 802.1x, Dynamic VLAN assignment, Dynamic Host Configuration Protocol (DHCP) snooping, dynamic ARP inspection, IP source guard, guest VLAN, Port-based learn limits (intrusion detection), MAC authentication bypass, 802.1x, Tri-authentication: MAC-based, Web-based and IEEE 802.1X, multidomain authentication, storm control - unicast, multicast, broadcast, SCP, SSH, SNMPv3, TACACS+, RADIUS server/client, MAC address notification, BPDU guard, SUDI 2099 (Secure Unique Device identifier), Access Lists (PACL/RACL/VACL), MACsec-128
Redundancy	ITU-T G.8032 ERPS Ring, STP, RSTP, MSTP
IPv6	IPv6 host support, SNMP over IPv6, HTTP/HTTP(s) over IPv6, SNMP over IPv6, Syslog over IPv6, DHCPv6 relay source, DHCPv6 bulk lease query (RFC 5460), IPv6 stateless Auto Config, SCP/SSH, Radius, TACACS+, NTP over IPv6, IPV6 ND cache expire, IPv6 support for TFTP, IPv6 DNS transport, IPv4 and IPv6 dual stack
Military and Fieldbus protocols	IEEE 1588 PTP
Network Synchronization	NTP Server/Client, SNTP
Precision Network Synchronization	IEEE1588v1 Ordinary Clock/Boundary Clock IEEE1588v2 End 2 End Transparent Clock IEEE1588v2 Ordinary Clock/Boundary Clock

Interfaces	
Copper Ports	Up to 8 10/100/1000 BASE-T(X) auto negotiation speed
Fiber Optics Ports	Up to 4 100/1000 BASE-X SFP slots
LED Indicators	PWR 1, PWR 2, Alarm, Run, Ring, Ring Master, PoE
Console	RS232
Relay Output	2 relay with current carrying capacity of 1A @ 80 VDC
Button	Reset Button

Connector Type	
Power	MIL-C-26482 10P
LAN	MIL-C-26482-14P
Fiber	MIL-DTL-38999, Multi-channel (4 in 1) fiber ports
Console	MIL-C-26482-6P
Relay output	MIL-C-26482-6P

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Physical Characteristics	
Housing	IP65 galvanized steel & aluminum housing
Dimension (W x H x D)	280 mm x 248 mm x 74.9 mm (connectors included)
Weight	3.2 kg
Installation	Wall mount

Compliance	
Aspect	Details
Military standard	MIL-STD-810G
	MIL-STD-461E
	Salt fog certified (optional)
Safety	EN62368-1 (LVD)
EMC	EN 55032/35
EMI	CISPR 22, 32, FCC Part 15B Class A
	EN61000-6-2/6-4
EMS	IEC 61000-4-2 ESD
	IEC 61000-4-3 RS
	IEC 61000-4-4 EFT
	IEC 61000-4-5 Surge
	IEC 61000-4-6 CS
	IEC 61000-4-8 PFMF
RoHS II	Yes

Environmental limits	
Operating Temperature	-40°C~70°C (-40°F~158°F)
Storage Temperature	-40°C~85°C (-40°F~185°F)
Ambient Relative Humidity	5%~95%, 55°C (Non-condensing)

Warranty
5 years limited hardware warranty on all Pantherun branded products

Management and Standards		
IEEE Standards	IEEE 802.3 for 10BaseT	IEEE 1588v2 PTP Precision Time Protocol
	IEEE 802.3u for 100BaseT(X)	IEEE 802.1AB LLDP
	IEEE 802.3ab for 1000BaseT(X)	IEEE 802.3x for Flow Control, back pressure flow control
	IEEE 802.3z for 1000BaseX	IEEE 802.1D-2004 for Spanning Tree Protocol

Management and Standards

IEEE Standards	IEEE 802.3x full duplex on 10BASE-T	IEEE 802.1w for Rapid Spanning Tree Protocol
	IEEE 802.3af Power over Ethernet	IEEE 802.1s for Multiple Spanning Tree Protocol
	IEEE 802.3at Power over Ethernet Plus	IEEE 802.1Q for VLAN Tagging
	IEEE 802.3bt Power over Ethernet Plus Plus	IEEE 802.1p for Class of Service
	IEEE 802.1D MAC Bridges, STP	IEEE 802.1X for Authentication
	IEEE 802.1p Layer2 COS prioritization	IEEE 802.3ad for Port Trunk with LACP
	IEEE 802.1x Port Access Authentication	IEEE 802.3az for Energy Efficient Ethernet

RFC Compliance	RFC 768: UDP	RFC 1492: TACACS+
	RFC 783: TFTP	RFC 1493: Bridge MIB Objects
	RFC 791: IPv4 protocol	RFC 1534: DHCP and BOOTP interoperation
	RFC 792: ICMP	RFC 1542: Bootstrap Protocol
	RFC 793: TCP	RFC 1643: Ethernet Interface MIB
	RFC 826: ARP	RFC 1757: RMON
	RFC 854: Telnet	RFC 2068: HTTP
	RFC 959: FTP	RFC 2131, 2132: DHCP
	RFC 1157: SNMPv1	RFC 2236: IGMP v2
	RFC 1901,1902-1907 SNMPv2	RFC 3376: IGMP v3
	RFC 2571: SNMP Management	RFC 2474: DiffServ Precedence

SNMP MIB	MIB II, IF-MIB, SNMPv2 MIB, BRIDGE-MIB, RMON MIB Group 1,2,3,9, RFC 1157, RFC 1213, RFC 1215, RFC 1493, RFC 1643, RFC 1757, RFC 2011, RFC 2012, RFC 2013, RFC 2233, RFC 2571, RFC 2742, RFC 2819, RFC 2863,RFC 3411, RFC 3412, RFC 3413, RFC 3414, RFC 3415, RFC 2674

Ordering Information

Hunter-12PL2-8PoE-4SFP	12-Port Military Gigabit Managed L2 switch with 8 PoE and 4 SFP ports