Agile-28PL2 Series
28-Port Industrial Gigabit Managed L2 switches

This Agile-28PL2 Rugged Series provides 28 ports of Gigabit L2 Ethernet connectivity in a rackmount form factor including the ability to stack one more 28 port rackmount for a wide variety of extended enterprise and industrial applications. This series of switches comprises a high performance L2 managed switch, providing wide temperature operation fibre over SFP. With extensive market specific certifications it caters seamlessly to markets ranging from smart cities, surveillance, traffic, railway and industrial automation.

This switch is also ideal for deployments in outdoor spaces, warehouses, and distribution centers. It runs the Linux OS with built-in security, on a high-performance ARM processor, with integrated switch function, to provide a highly scalable architecture that allows for addition of functions in a very flexible manner. It can we managed can be managed with powerful open source management tool called Zabbix, as well as a user-friendly, modern web based GUI.

It supports power budget of up to 720W for PoE/PoE+, shared across upto 24 ports, and is ideal for connecting PoE-powered end devices such as IP cameras, phones, wireless access points, sensors, and more.

Highlights

- Built for harsh environments and temperature ranges (-40°C to +75°C)
- Hardened for vibration, shock and surge, and electrical noise immunity
- Supports up to 24 PoE/PoE+ ports [Power budget - upto 720W]
- Full Gigabit Ethernet with comprehensive Industrial communication functions
- IEEE 1588v2 Precision Time Protocol HW-Based Transparent clock

Salients	Highlights
Designed to industrial needs	Built for harsh environments and temperature ranges (-40°C to +75°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 24 PoE/PoE+ ports [Power budget - upto 720W]
	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 28 ports of Gigabit Ethernet - upto 24 Gigabit and upto 4 10G Small Form-Factor Pluggable (SFP) uplinks, or upto 24 Gigabit copper RJ45 ports (non PoE) or upto 24 with PoE/PoE+
	Delivers multiple rings and redundant ring topologies for new network configurations, supporting advanced protocols, such as STP/RSTP, MSTP, ERPS, LACP.
	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
USB Configuration and external storage	Easy one-touch configuration by simply reading from USB and external storage
Certifications tailored to multiple vertical segments	CE/FCC

Port configuration Listing	
Agile-28PL2-24PoE-10GSFP-DC	28-Port Industrial L2 Gigabit Switch with 24 PoE, 4 10G SFP with dual DC
Agile-28PL2-24RJ-10GSFP-DC	28-Port Industrial L2 Gigabit Switch with 24 RJ45, 4 10G SFP with dual DC

Model	Copper RJ45	Fibre SFP	Copper PoE	USB
Agile-28PL2-24PoE-10GSFP-DC	0	4	24	1
Agile-28PL2-24RJ-10GSFP-DC	24	4	0	1

Model	Power budget (PoE)	Power	Console
Agile-28PL2-24PoE-10GSFP-DC	720W	Dual	1 RS232 (RJ45)
Agile-28PL2-24RJ-10GSFP-DC	Not applicable	Dual	1 RS232 (RJ45)

Performance parameters	
Forwarding rate	Line rate for all ports and all packet sizes
Number of Queues	8
MAC Table Size	16K
Packet Buffer Size	12Mbits
Jumbo Frame Size	9216bytes
VLAN Table	4094
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

Power specifications		
Models	Agile-28PL2-24PoE-10GSFP-DC	Agile-28PL2-24RJ-10GSFP-DC
Input Voltage range	48~57VDC, redundant dual inputs, >50VDC for PoE+ output recommended	0.39A@48VDC
Power consumption	0.45A@48VDC	0.39A@48VDC
PoE Power Budget	Max. 720W@DC, for total PD consumption, Max. 30W per PoE port	N/A
Connector	DC 4-pin terminal block	
Protection	Overload Current Protected, Reverse Polarity Protected	

Software features

Layer 2 switching	IEEE 802.1, 802.3 standard, NTP, LLDP, unicast MAC filter, LACP, voice VLAN, VLAN double tagging (QinQ), MSTP, SNMPv1/v2c/v3, SNMP Inform, ICMP, Telnet, SSH, DHCP Server/Relay/Client, DHCP Option, BootP, RARP, TFTP, SMTP, SMTP (Gmail), RMON, HTTP, HTTPS, Syslog, LLDP, 802.1x, RSTP, Port and VLAN, mirroring (RSPAN), Digital Diagnostic Monitoring (DDM)
Quality of Service (QoS)	Rate limit, auto QoS, ingress policing, egress queuing and shaping
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, 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, 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
Industrial and Fieldbus protocols	IEEE 1588 PTP
Network Synchronization	NTP Server/Client
Precision Network Synchronization	IEEE1588v1 Ordinary Clock/Boundary Clock IEEE1588v2 End 2 End Transparent Clock IEEE1588v2 Ordinary Clock/Boundary Clock

USB Interfaces

USB port	1x USB A Type connector (USB 2.0)

Physical Characteristics

Housing	IP30 housing
Dimension (W x H x D)	440 mm x 44 mm x 340 mm
Weight	3.68 kg
Installation	Rack Mounting

Interfaces		
Models	Agile-28PL2-24PoE-10GSFP-DC	Agile-28PL2-24RJ-10GSFP-DC
RJ45 Ports	24x 10/100/1000T(x) with PoE+, auto negotiation speed duplex mode, auto MDI/MDI-X	24x 10/100/1000T(x), auto negotiation speed duplex mode, auto MDI/MDI-X
PoE Pin Out	V+, V+, V-, V-, for pin 1, 2, 3, 6, Endspan, MDI Mode A	N/A
LED Indicators	Per unit: PWR1, PWR2, Fault, Ring Master, Ring State Ports: Link/Active with highest speed(Green), low speed(Amber) PoE: Output Power	Per unit: PWR1, PWR2, Fault, Ring Master, Ring State Ports: Link/Active with highest speed(Green), low speed(Amber)
Fiber Optics Ports	4x 1/10 Gigabit Ethernet SFP+ Slot	
Console	1x RS232 in RJ45 connector with console cable, 115.2Kbps, 8N1	
Relay Output	1x relay output with current carrying capacity of 1A @ 24 VDC	
Digital Input	1x isolated input from the electronics. +13 to +30V for state "1" -30 to +3V for state "0" Max. input current: 8mA	
Button	Reset Button	
Storage	1x USB 2.0 storage for firmware update, configuration backup, restore, boot up and syslog	

Compliance	
Aspect	Details
EMI	FCC Part 15 Subpart B Class A CE EN 55032 Class A
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
Free Fall	IEC 60068-2-32
Shock	IEC 60068-2-27
Vibration	IEC 60068-2-6
Green	RoHS Compliant
Railway	EN50121-4 (optional)
Traffic control	NEMA TS2 (optional)

Environmental limits	
Operating Temperature	-40°C~75°C (-40°F~167°F)
Storage Temperature	-40°C~85°C (-40°F~185°F)
Ambient Relative Humidity	5%~95%, 55°C (Non-condensing)

Warranty

10 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
	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
	RFC 1256: ICMP Router Discovery	RFC 3046: DHCP Relay Agent Information Option
	RFC 951: BootP	RFC 3580: 802.1x RADIUS
	RFC 2273-2275: SNMPv3	RFC 4250-4252 SSH Protocol
	RFC 1166: IP Addresses	RFC 5460: DHCPv6 bulk lease query
	RFC 1305: NTP	-

Management and Standards

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

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