



PG5-1600-M12XB-67 Series

16-Port Industrial M12 Gigabit PoE+ Managed Ethernet Switch
-16*10/100/1000Base-T(X) with PoE-PSE(30W/Port)



- 16-port 10/100/1000Base-T(X) Ethernet with 802.3af/at compliant PoE, 30W/port
- Multiusers account for security
- Bypass design for Daisy Chain Redundancy
- Configuration: http, https, CLI Command, Telnet, SNMP, SSH
- Network redundancy support: G.8032 ERPS v2/ STP/ RSTP/ MSTP
- Supports Static routes for routing function
- Supports RADIUS, TACACS+ authentication protocol
- Supports QoS, LACP bandwidth control
- Supports VLAN, SNMP v1/v2c/v3, ACL, IP source guard for Ethernet security
- PoE ping alarm function for PoE ports power recycle
- Redundant power inputs design
- Operating temperature range
- STD: -10°C ~ 65°C, EOT: -40°C ~ 70°C



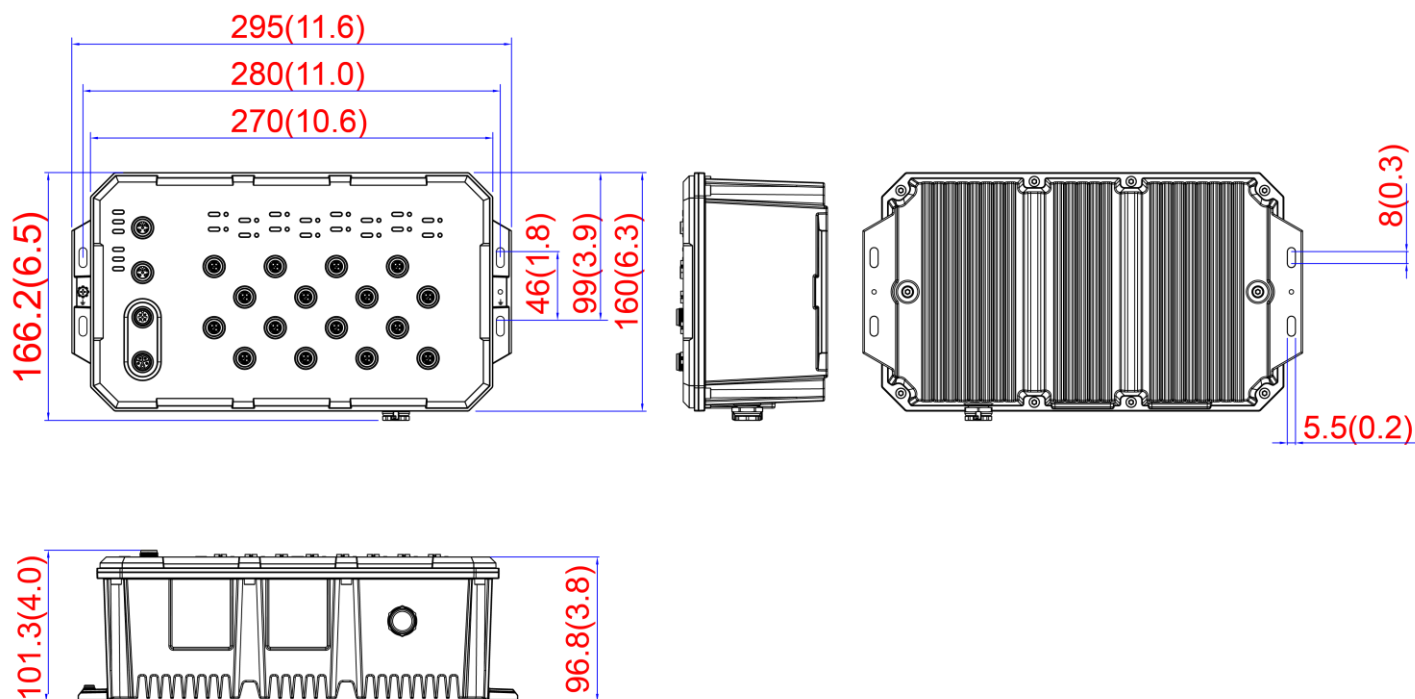
Introduction

Leonton's PG5-1600-M12XB-67 Series is a 16-port managed Gigabit Ethernet switch, which provides 16*10/100/1000 Base-T(X) with IEEE 802.3 af/at PoE compliant. PG5-1600-M12XB-67 Series is a fully manageable Layer-2 Ethernet switch series and supports power input redundancy. PG5-1600-M12XB-67 Series offers standardized network redundancy ITU-T G.8032 ERPS v2 (Ethernet Ring Protection Switch) protocol, providing <50ms recovery time to the network, to give users the chance to choose your Ethernet switch but not tied up with a particular brand's product.

PG5-1600-M12XB-67 Series provides comprehensive network security and management capability by supporting Multiusers account, IGMP, GVRP, VLAN, QoS, SNMP, RADIUS, TACACS+, Aggregation(Static, LACP), SSH, SSL, IP source guard to create a highly-secured network environment. For power saving purposes, assuring PD priority, and enhancing security level of the network, PG5-1600-M12XB-67 Series also supports PoE scheduling and PoE output limit function to set up PoE output duration and watt at will.

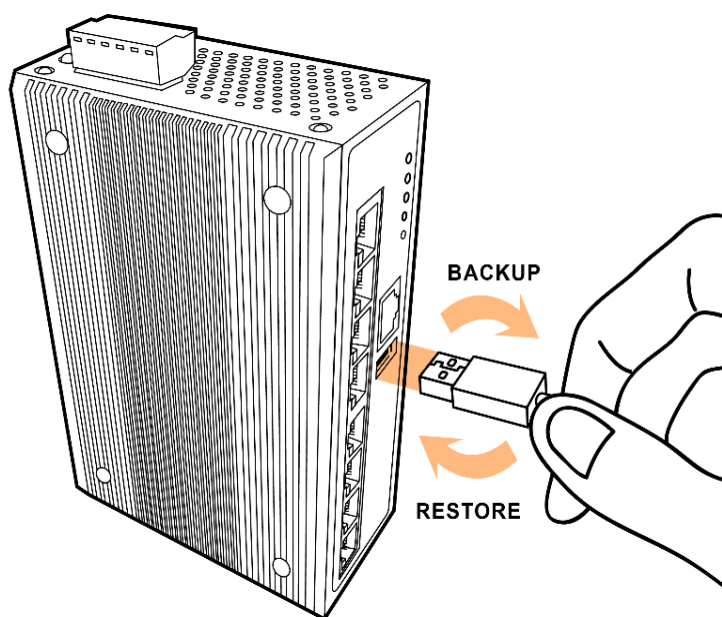
PG5-1600-M12XB-67 Series as an industrial Ethernet switch product line is designed to withstand harsh and extreme environmental conditions. With a fan-less design, PG5-1600-M12XB-67 Series still manage to be applied in extremely polarized temperature, from -40oC to 70oC, making it the best choice in various industrial applications.

Dimension



Unit: mm (inch)

USB Backup/Restore Function



Leonton's Managed Ethernet switch series supports USB 2.0 flash drive, which allows user to backup and restore the device configuration to meet the need of quick device swap. And USB port on Managed Ethernet switch series is applicable to the most common USB flash drives, hugely elevating convenience for user.

Specification

Technology	
Standards	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX Fast Ethernet IEEE 802.3ab 1000Base-T Gigabit Ethernet IEEE 802.3af/at Power over Ethernet IEEE 802.3x Flow Control IEEE 802.1d STP (Spanning Tree Protocol) IEEE 802.1w RSTP (Rapid Spanning Tree Protocol) IEEE 802.1s MSTP (Multiple Spanning Tree Protocol) ITU-T G.8032 / Y.1344 ERPS v1/v2(Ethernet Ring Protection Switch) IEEE 802.1Q Virtual Local Area Network (VLAN) IEEE 802.1p QoS/CoS Protocol for Traffic Prioritization IEEE 802.1X Network Authentication IEEE 802.1AB Link Layer Discovery Protocol (LLDP) IEEE 802.3ad Link Aggregation (LACP)
Processing Type	Store and Forward
Flow Control	IEEE 802.3x flow control, back pressure flow control
Network Management	
Management	IPv4/IPv6, SNMP v1/v2c/v3, LLDP, LLDP-MED, HTTP, HTTPS, SSHv2 telnet, DHCP client, DHCPv6 client, DHCP server, Port Mirror, DNS client/proxy, IP based Access Filter, ICMPv6, syslog, Time Zone /Daylight Saving, NTP client, RMON, sFlow, Loop detection, DDMMI, Modbus TCP, Console Port, USB configuration backup/restore, Power lost warning, relay trigger
Security	Port-based/Single/Multi 802.1X, ACL(Port/Rate Limiters/ACE), MAC-based Authentication, VLAN assignment, QoS Assignment, Private VLAN, Guest VLAN, RADIUS accounting, TACACS+, IP MAC binding, WEB/CLI authentication, Authorization (15 levels), Port Security Limit Control, ACLs for filtering/policing/port copy, IP source guard, ARP Inspection
L2 Switching	Port/MAC/Protocol/IP Subnet-based VLAN, GARP/GVRP, Loop Guard, Link Aggregation static/LACP, BPDU guard, Error disable recovery, IGMP snooping v2/v3, MLD snooping v1/v2, IGMP filtering, IPMC throttling / filtering leave proxy, DHCP snooping, G.8032 v1/v2
L3 Switching	DHCP option82, static routes
QoS	802.1p Queueing, Input priority mapping, Storm control for Unicast/Multicast/Broadcast, Port/Queue/ACL policer, Port egress shaper, Queue egress shaper, DiffServ (DSCP), Tag remarking, Scheduler mode
Power Saving	ActiPHY, PerfectReach, IEEE 802.3az EEE power management
Network Redundancy	STP/RSTP/MSTP, port trunk with LACP, ERPS v1/v2 (<50ms)
Configuration	Http, Https, Telnet, SSH, CLI, TFTP, SNMP v3
PoE	POE/POE+ port power allocation, Power budget protection, PoE output scheduled, PoE alive check and remote reboot PD device
System / Diagnostics	Dual Image Protection, PING, PING6
SNMP MIBs & RFC Standards	RFC 2674 VLAN MIB IEEE-802.1Q bridge MIB 2008 RFC 2819 RMON (group 1, 2, 3, and 9) RFC 1213 MIB II RFC 1215 TRAPS RFC 4188 bridge RFC 4292 IP forwarding table RFC 4293 management information base for the Internet Protocol (IP) RFC 5519 multicast group membership discovery RFC 4668 RADIUS auth. client RFC 4670 RADIUS accounting RFC 3635 Ethernet-like RFC 2863 interface group MIB using SMI v2 RFC 3636 802.3 MAU RFC 4133 entity MIB v3 RFC 3411 SNMP management frameworks

RFC 3414 user-based security model for SNMPv3
 RFC 3415 view-based access control model for SNMP
 RFC 2613 SMON – PortCopy
 IEEE 802.1 MSTP
 IEEE 802.1AB LLDP-MIB (LLDP MIB included in a clause of the STD)
 IEEE 802.3ad (LACP MIB included in a clause of the STD)
 IEEE 802.1X (PAE MIB included in a clause of the STD)
 TIA 1057 LLDP-MED (MIB is part of the STD)
 RFC 3621 LLDP-MED Power (PoE) (No specific MIB for PoE+ exists)

Switch Properties

Switching Fabric (Back-Plane)	32Gbps
Priority Queues	8
Max. Number of VLANs	4095
VLAN ID Range	VID 1 to 4095
Memory Buffer	32Mbits
Jumbo Frame	9.6Kbytes
MAC Table Size	32K
IGMP Group	1024
Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port 1,488,000pps for Gigabit Ethernet port

Interface

RJ45 Ports	16*10/100/1000 Base-T(X), 8-pin M12 X-Coded female connectors. Auto-Negotiation, Full/Half Duplex, Auto-MDI/MDI-X
PoE Pin Out	V+, V+, V-, V-, for pin 1, 2, 3, 6 (End-span, Mode A)
LED Indicators	System: Power 1, Power 2, Master (M), Ring (R), Status PoE: On-connected to PD devices Ethernet ports: Speed/Link/Active
RS232 Serial Console	1*RS232 with M12 5-pin A-coded female connector, baud rate 115,200bps,8,N,1
Configuration Backup	1*USB 2.0 with M12 4-pin A-coded female connector for configuration backup/restore
Relay Contact	24 VDC, 1A resistive
DI	1* Digital Input (DI): State 0: -30~8VDC / State 1: 10~30VDC, Max. input current: 8mA
Network Cable	10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable EIA/TIA-568 100-ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5 cable EIA/TIA-568 100-ohm (100m) 1000Base-TX: 4-pair UTP/STP Cat.5/5E cable; EIA/TIA-568 100-ohm (100m)

Power Requirements

Input Voltage	PG5-1600-M12XB-24-67 Series: Dual 24-55VDC redundant power inputs PG5-1600-M12XB-110-67 Series: Dual 24-110VDC redundant power inputs
Power Connection	Dual DC power inputs through M12 4-pin K-coded male Connector
Overload Current Protection	Present (Slow-Blow Fuse)
Reverse Polarity Protection	Present
System Power Consumption	PG5-1600-M12XB-24-67 Series: Max. 28W full loading PG5-1600-M12XB-110-67 Series: Max. 45W full loading
Max. PoE Power Budget	PG5-1600-M12XB-24-67 Series: 240W PG5-1600-M12XB-110-67 Series: 120W
PoE Power Output	30W max. per PoE port

Mechanical Characteristics

Housing	Metal, IP67 protection
Dimensions (W x H x D)	160 x 295 x 101.3 mm (6.3x 11.6 x 4.0 inch)
Weight	PG5-1600-M12XB-24-67 Series: Unit weight: 4.108 kg (9.06 lb), Shipping weight: 4.834 kg (10.66 lb) PG5-1600-M12XB-110-67 Series: Unit weight: 4.268 kg (9.41 lb), Shipping weight: 4.992 kg(11.01 lb)
Mounting	Wall Mounting

Environmental Limits

Operating Temperature	STD: -10°C ~ 65°C (14°F ~ 149°F) EOT: -40°C ~ 70°C (-40°F ~ 158°F)
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Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Ambient Relative Humidity	5 to 95%, (non-condensing)
Regulatory Approvals	
EMI	FCC Part 15 Subpart B Class A, CE EN55032/EN61000-6-4 Class A
EMS	CE EN55035/EN61000-6-2 IEC61000-4-2 (ESD), IEC61000-4-3 (RS), IEC61000-4-4 (EFT), IEC61000-4-5 (Surge), IEC61000-4-6 (CS), IEC61000-4-8 (Magnetic Field)
Free Fall	IEC60068-2-32
Shock	IEC60068-2-27
Vibration	IEC60068-2-6
Green	RoHS Compliant
Safety	UL61010-1 (Pending), UL61010-2-201 (Pending)
Railway	EN50121-3-2, EN50121-4
MTBF (Telcordia SR-332, Issue 3, GB, 25°C)	PG5-1600-M12XB-24-67 Series: 271,943 hrs. PG5-1600-M12XB-110-67 Series: 271,745 hrs.
Warranty	5 Years
NOTE: Due to continuous improvement, all product specifications are subject to change without further notice.	

Packet Contents	pcs
PG5-1600-M12XB-(-T)67 Ethernet switch	1
Quick installation guide (printed)	1

Comparison Table				
Model Name	10/100/1000T(X)	100/1000(F)X SFP	Power Inputs	Operating Temperature
PG5-1600-M12XB-24-67	16	-	24-55VDC	-10°C ~ 65°C
PG5-1600-M12XB-24-T67	16	-	24-55VDC	-40°C ~ 70°C
PG5-1600-M12XB-110-67	16	-	24-110VDC	-10°C ~ 65°C
PG5-1600-M12XB-110-T67	16	-	24-100VDC	-40°C ~ 70°C

Ordering Information	
PG5-1600-M12XB-24-67	16-Port Industrial M12 Gigabit PoE+ Managed Ethernet Switch -16*10/100/1000Base-T(X), 12-55VDC, -10°C ~ 65°C
PG5-1600-M12XB-24-T67	16-Port Industrial M12 Gigabit PoE+ Managed Ethernet Switch -16*10/100/1000Base-T(X), 12-55VDC, -40°C ~ 70°C
PG5-1600-M12XB-110-67	16-Port Industrial M12 Gigabit PoE+ Managed Ethernet Switch -16*10/100/1000Base-T(X), 24-110VDC, -10°C ~ 65°C
PG5-1600-M12XB-110-T67	16-Port Industrial M12 Gigabit PoE+ Managed Ethernet Switch -16*10/100/1000Base-T(X), 24-110VDC, -40°C ~ 70°C

Optional Accessories - Power Supply Series	
30W Power Supply Series	
HDR-30-24	36W Industrial DIN-Rail Power Supply, 24VDC/1.5A, Universal 85-264VAC/120-370VDC power input, Plastic, -30°C ~ 70°C
60W Power Supply Series	
HDR-60-24	60W Industrial DIN-Rail Power Supply, 24VDC/2.5A, Universal 88-264VAC/124-370VDC power input, Plastic, -30°C ~ 70°C

MDR-60-24	60W Industrial DIN-Rail Power Supply, 24VDC/2.5A, Universal 85-264VAC/120-370VDC power input, Plastic, -20°C ~ 70°C
75W Power Supply Series	
EDR-75-48	75W Industrial DIN-Rail Power Supply, 48VDC/1.6A, Universal 90-264VAC/127-370VDC power input, Metal, -20°C ~ 60°C
NDR-75-48	75W Industrial DIN-Rail Power Supply, 48VDC/1.6A, Universal 90-264VAC/127-370VDC power input, Metal, -20°C ~ 70°C
120W Power Supply Series	
EDR-120-48	120W Industrial DIN-Rail Power Supply, 48VDC/2.5A, Universal 90-264VAC/127-370VDC power input, Metal, -20°C ~ 60°C
NDR-120-24	120W Industrial DIN-Rail Power Supply, 24VDC/5A, Universal 90-264VAC/127-370VDC power input, Metal, -20°C ~ 70°C
NDR-120-48	120W Industrial DIN-Rail Power Supply, 48VDC/2.5A, Universal 90-264VAC/127-370VDC power input, Metal, -20°C ~ 70°C
240W Power Supply Series	
NDR-240-48	240W Industrial DIN-Rail Power Supply w/ PFC, 48VDC/5A, Universal 90-264VAC/127-370VDC power input, Metal, -20°C ~ 70°C
SDR-240-24	240W Industrial DIN-Rail Power Supply w/ PFC, 24VDC/10A, Universal 88-264VAC/124-370VDC power input, Metal, -25°C ~ 70°C
480W Power Supply Series	
NDR-480-48	480W Industrial DIN-Rail Power Supply w/ PFC, 48VDC/10A, Universal 90-264VAC/127-370VDC power input, Metal, -20°C ~ 70°C