

Product Data Sheet

Industrial Managed Gigabit Ethernet Switches



LEH2004A-4GSFP



LPH2004A-2GSFP



LPH2008A-4GSFP

Overview

Designed for rugged environments, these Industrial Managed Gigabit Ethernet Switches give you the high reliability you need for mission-critical networks. Use them to configure, control, and monitor remote equipment in the worst environments.

Basic Features

- Industrial Managed Gigabit Ethernet switches with 10-/100-/1000-Mbps copper access ports and SFP uplinks.
- Models available to support PoE+.
- Operate in extreme temperatures of -40 to +75°C.
- Supports Ethernet redundancy protocol with recovery time of less than 20 ms over 250 connected units.
- Protects your mission-critical applications from network interruptions or temporary malfunctions with its fast recovery technology.
- Support STP/RSTP/MSTP.
- Support PTP client (Precision Time Protocol) clock synchronization.
- IP Multicast Filtering through IGMP Snooping.
- Manageable through a Web interface, SNMP, or command-line interface (CLI).
- Port trunking for easy bandwidth management.
- RMON for traffic monitoring.
- Supports DDM (Digital Diagnostic Monitoring).
- LLDP (Layer Link Discovery Protocol).
- Event notification through Syslog, email, SNMP trap, and relay output.
- Configurable by Web GUI, Telnet, or Console (CLI).
- Rigid IP-30 housing design; mounts on a DIN rail or wall.

Industrial Managed Gigabit Ethernet Switches (LEH2000, LPH2000 Series)

Built tough.

Encased in an IP30-rated metal case, these switches withstand extreme temperatures ranging from -40° C to +75° C. You can use them in a multitude of environments from factory floors to transportation applications. The switches comply with multiple environmental standards. Use them for:

- Security and surveillance applications, particularly with video cameras and access control.
- Military applications, especially in ships and other vehicles.
- Factory automation applications for controlling machinery.
- Oil and gas fields for remote equipment monitoring and control.
- Building automation for controlling mechanical, electronics, and lighting systems.

Maximize uptime.

Advanced management features will help you minimize network downtime by enabling you to remotely diagnose and manage network problems. You'll lower operational expenses, too, by eliminating the need to send techs on site to troubleshoot and access network equipment.

The switches are fully manageable through SNMP, a Web browser, Telnet, or a console port. You can control the bandwidth use on each port individually as well as set up Quality of Service (QoS) priority queuing for critical applications.

The switches support port-based VLAN and IEEE 802.1Q VLAN tagging, MAC-based trunking, IP-multicast IGMP snooping, rapid spanning tree for redundancy, and port mirroring. Plus, they also have 802.1x port-based authentication for security.

Network flexibility with multiple protocol options.

The switches give you maximum network flexibility with multiple methods for maintaining network resiliency, including Spanning Tree Protocol (STP/RSTP) and Ring protocol. The switches can also help you maximize network uptime by enabling failover links with a 20-millisecond or less failover.

With STP, you can set up redundant links to provide automatic backup paths if an active link fails. It also avoids the creation of bridge "loops" that cause broadcast storms.

In addition, you can also seamlessly incorporate the Alpha-Ring into existing STP networks for greater redundancy.

Expand bandwidth with Link Aggregation Control Protocol (LACP 802.3ad) by combining links and providing another method of network redundancy.

Multiple switch choices.

All models have copper ports and two or four Gigabit combo twisted-pair/fiber uplink ports. The switches offer full wire-speed forwarding rates, autonegotiate for network speeds, and Auto-MDI/MDI-X, eliminating the need for crossover cables on the copper ports.

The switches are available in two types: without PoE+ (LEH2004A-4GSFP) and with PoE+ (LPH2004A-2GSFP and LPH2008A-4GSFP).

The switches come with redundant power inputs (terminal block and DC jack) and are designed for DIN-rail or wallmounting. The panel and rack mounting kits and power supplies are sold separately. The switch also includes a serial cable (DB9 M/F) for the console connection.

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Technical Specifications

Technology

Address Table Size	8K
Distance	Copper Ethernet ports: 328 ft. (100m); SFP: Depends on SFP
Forwarding and Filtering Rate	14,880 pps for 10 Mbps, 148,810 pps for 100 Mbps, 1,488,810 pps for 1000 Mbps
Packet Buffer Memory	2 Mbits
Priority Queues	LEH2004A-4GSFP, LPH2008A-4GSFP: (4); LPH2004A-2GSFP: (8)
Processing Type	Store-and-Forward; Half-duplex back-pressure; IEEE 802.3x full-duplex flow control
Management	RS-232 console (RJ-45), Telnet, SNMP v1, v2, and v3, RMON, Web browser, and TFTP management
Security	LEH2004A-4GSFP, LPH2004A-2GSFP, LPH2008A-4GSFP: Port-based network access control (802.1x); VLAN (802.1Q) to segregate and secure network traffic;= Radius centralized password management; SNMPv3 encrypted authentication and access security; LPH2004A-2GSFP and LPH2008A-4GSFP also have: Device binding; https/ssh enhances network security

Switch Properties

Switching Latency	LEH2004A-4GSFP, LPH2004A-2GSFP, LPH2008A-4GSFP: 7 μ s
Switching Bandwidth	LEH2004A-4GSFP: 16 Gbps; LPH2004A-2GSFP: 12 Gbps; LPH2008A-4GSFP: 24 Gbps
Maximum Number of Available VLANs	LEH2004A-4GSFP: 4096; LPH2004A-2GSFP, LPH2008A-4GSFP: 256
IGMP Multicast Groups	LEH2004A-4GSFP: 1024; LPH2004A-2GSFP, LPH2008A-4GSFP: 128 for each VLAN
Port Rate Limiting	User-defined

Interface

Connectors	LEH2004A-4GSFP: (4) RJ-45 10/100/1000, auto MDI/MDI-X ports; (4) 100/100BASE-X RJ-45 with SFP combo ports; LPH2004A-2GSFP: (4) RJ-45 10/100/1000, auto MDI/MDI-X, PSE ports; (2) SFP ports; LPH2008A-4GSFP: (8) RJ-45 10/100/1000, auto MDI/MDI-X, PSE ports; (4) SFP ports
Console Port	(1) RJ-45 RS-232

Physical

Alarm Contact	(1) Relay output with current 1A @ 24 VDC
Enclosure	IP-30 aluminum
Indicators	LEH2004A-4GSFP: (3) Power LEDs: Power Status, Power 1, Power 2, (1) Ring Master LED, (1) Ring Enabled LED, (1) Fault LED, (4) SFP Link/Act LEDs for fiber uplink ports, (4) RJ-45 Link/Act LEDs, (4) Speed LEDs for LAN ports; LPH2004A-2GSFP: (3) Power LEDs: Power Status, Power 1, Power 2, (1) Ring Master LED, (1) Ring Enabled LED, (1) Fault LED, (4) PoE LEDs for RJ-45 LAN ports, (2) SFP Link/Act LEDs for fiber uplink ports, (4) RJ-45 Link/Act LEDs, (4) Speed LEDs for LAN ports;

Physical (continued)

Indicators (continued)	LPH2008A-4GSFP: (3) Power LEDs: Power Status, Power 1, Power 2, (1) Ring Master LED, (1) Ring Enabled LED, (1) Fault LED, (4) PoE LEDs for RJ-45 LAN ports, (4) SFP Link/Act LEDs for fiber uplink ports, (4) RJ-45 Link/Act LEDs, (4) RJ-45 Full-duplex LEDs
Power	Power input: LEH2004A-4GSFP: (2) power inputs on 6-pin terminal blocks: 12 to 48 VDC; Consumption: 21 watts LPH2004A-2GSFP: (2) power inputs on 6-pin terminal blocks: 50 to 57 VDC; Consumption: 9.7 watts; LPH2008A-4GSFP: (2) power inputs on 6-pin terminal blocks: 50 to 57 VDC; Consumption: 13.2 watts <i>NOTE: All models support overload current protection and reverse polarity protection.</i>
Environmental	Temperature: Operating: -40 to +158° F (-40 to +70° C); Storage: -40 to +185° F (-40 to +85° C)
Dimensions	LEH2004A-4GSFP: 6.05"H x 2.93"W x 4.3"D (15.36 x 7.43 x 10.92 cm); LPH2004A-2GSFP: 5.72"H x 2.13"W x 4.18"D (14.54 x 5.41 x 10.61 cm); LPH2008A-4GSFP: 6.06"H x 3.8"W x 4.27"D (15.4 x 9.64 x 10.85 cm)
Weight	LEH2004A-4GSFP: 2.36 lb. (1.08 kg); LPH2004A-2GSFP: 1.68 lb. (0.77 kg); LPH2008A-4GSFP: 2.7 lb. (1.23 kg)
Approvals	Standards: LEH2000, LPH2000 Series: IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-T, 100BASE-FX, IEEE 802.3ab 1000BASE-T, IEEE 802.3z 1000BASE-SX/LX, IEEE 802.3x for flow control, IEEE 802.3ad for LACP (Link Aggregation Control Protocol), IEEE 802.1D for STP (Spanning Tree Protocol), IEEE 802.1p for COS (Class of Service), IEEE 802.1Q for VLAN tagging, 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); LPH2000 Series also has: IEEE 802.3at PoE specification (up to 30 watts for PSE), IEEE 1588v2 clock synchronization; Compliance: EMI: FCC Part 15, Class A EN61000-6-4, EN55022, EN61000-3-2, EN61000-3-3 EMS: EN61000-4-2 (ESD), EN61000-4-3 (radiated RFI), EN61000-4-4 (burst), EN61000-4-5 (surge), EN61000-4-6 (induced RFI), EN61000-4-8 (magnetic field), IEC60068-2-32 (free fall)

Industrial Managed Gigabit Ethernet Switches (LEH2000, LPH2000 Series)

Ordering Information: Hardened Managed Gigabit Ethernet Switches

Part Number	Product Name	Compatible SFP Modules
LEH2000 Series:		
LEH2004A-4GSFP	Industrial Managed Gigabit Ethernet Switch - 4-Port RJ-45, 4-Port Combo RJ-45/SFP	LFP401, LFP402, LFP403, LFP404, LFP411, LFP412, LFP413, LFP414, LFP416
LPH2000 Series		
LPH2004A-2GSFP	Industrial Managed Gigabit Ethernet PoE+ Switch - 4-Port RJ-45, 2-Port SFP	LFP401, LFP402, LFP403, LFP404, LFP411, LFP412, LFP413, LFP414, LFP416
LPH2008A-4GSFP	Industrial Managed Gigabit Ethernet PoE+ Switch - 8-Port RJ-45, 4-Port SFP	LFP401, LFP402, LFP403, LFP404, LFP411, LFP412, LFP413, LFP414, LFP416

Ordering Information: SFP Modules

LFP401	SFP, 155-Mbps Fiber with Extended Diagnostics, 850-nm Multimode, LC, 2 km
LFP402	SFP, 155-Mbps Fiber with Extended Diagnostics, 1310-nm Multimode, LC, 2 km
LFP403	SFP, 155-Mbps Fiber with Extended Diagnostics, 1310-nm, Single-Mode, LC, 30 km
LFP404	SFP, 155-Mbps Fiber with Extended Diagnostics, 1310-nm Single-Mode, Plus, LC, 60 km
LFP411	SFP, 1.25-Gbps Fiber with Extended Diagnostics, 850-nm Multimode, LC, 300 m
LFP412	SFP, 1.25-Gbps Fiber with Extended Diagnostics, 1310-nm Multimode, LC, 2 km
LFP413	SFP, 1.25-Gbps Fiber with Extended Diagnostics, 1310-nm Single-Mode, LC, 10 km
LFP414	SFP, 1.25-Gbps Fiber with Extended Diagnostics, 1310-nm Single-Mode, LC, 30 km
LFP416	SFP with SGMII Interface, 1.25 Gbps, Copper, 10/100/1000BASE-T, Extended Diagnostics

Industrial Managed Gigabit Ethernet Switches (LEH2000, LPH2000 Series)

Ordering Information: Power Supplies for Hardened Ethernet Switches

Part Number	Description	Compatible Hardened Switches
MDR-40-12	DIN Rail Power Supply, 40 Watts, 12 VDC	LEH2004A-4GSFP
MDR-40-24	DIN Rail Power Supply, 40 Watts, 24 VDC	LEH2004A-4GSFP
MDR-40-48	DIN Rail Power Supply, 40 Watts, 48 VDC	LEH2004A-4GSFP
SDR-240-48	DIN Rail Power Supply, 240 Watts, 48 VDC	LEH2004A-4GSFP, LPH2004A-2GSFP, LPH2008A-4GSFP

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