Product Data Sheet

Hardened Managed Ethernet Switches

LEH908A

LEH1008A-2GSFP

Features

- Industrial Ethernet switches with 10-/100-Mbps copper access ports and 100-Mbps or Gigabit fiber optic uplinks.

- Models available to support PoE and PoE+.

- Operate in extreme temperatures of -40 to +75°C.

- Have 30-nS failover time, link failover, and redundant power inputs.

- Support alpha-ring, STP, and link aggregation.

- Manageable through a Web interface, SNMP, or command-line interface (CLI).

- Other features include:
  - Bandwidth rate control
  - Traffic prioritization
  - IEEE 802.1x security
  - IP Multicast Filtering through IGMP Snooping
  - QoS with four priority queues
  - DIN-rail, panel, and rackmount installation.

Overview

Designed for rugged environments, these Hardened Managed 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.

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.

Hardened Managed Ethernet Switches (LEH900, LEH1000, LEH1100 Series)

The switches are fully manageable through SNMP, RS-232, a Web browser, Telnet, or a console port. You can control the bandwidth utilization 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 redundance, and port mirroring. Plus, it also has 802.1x port-based authentication for security.

Network flexibility with multiple protocol options.

The switches give you maximum network flexibility with two methods for maintaining network resiliency: Spanning Tree Protocol (STP/RSTP) and Alpha-Ring protocol. The switches can also help you maximize network uptime by enabling failover links with a 30-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.

Choose from all copper switches or models with dual 100-Mbps or Gigabit fiber uplinks. All models 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 three types: without PoE (LEH900 Series), with PoE (LEH1000 Series), and with PoE+ (LEH1100 Series).

The switches come with redundant power inputs (terminal block and DC jack) and are designed for DIN-rail mounting. 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.

Technical Specifications

Technology

Address Table Size	8192 MAC addresses
Distance	MM: 2 km; SFP: Dependent 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
Processing Type	Store-and-Forward; Half-duplex back-pressure; IEEE 802.3x full-duplex flow control
Management	RS-232 console (DB9), Telnet, SNMP V1, V2, and V3, RMON, Web browser, and TFTP management
Security	IEEE 802.1x

Interface

Connectors	LEH908A: (8) RJ-45 10/100; LEH906A-2MMSC: (6) RJ-45 10/100, (2) 100BFX MM SC; LEH906A-2MMST: (6) RJ-45 10/100, (2) 100BFX MM ST; LEH906A-2SFP: (6) RJ-45 10/100, (2) 10/100 SFP; LEH906A-2GSFP: (6) RJ-45 10/100, (2) GE SFP; LEH1008A: (8) RJ-45 10/100 PoE (802.3af); LEH1008A-2MMSC: (8) RJ-45 10/100 PoE (802.3af), (2) SC 100BFX; LEH1008A-2MMST: (8) RJ-45 10/100 PoE (802.3af), (2) ST 100BFX; LEH1008A-2SFP: (8) RJ-45 10/100 PoE (802.3af), (2)100BFX SFP; LEH1008A-2GSFP: (8) RJ-45 10/100 PoE (802.3af), (2) GE SFP; LEH1104A-4MMSC: (4) RJ-45 10/100 PoE+ (802.3at), (4) 100BFX SC; LEH1104A-4MMST: (4) RJ-45 10/100 PoE+ (802.3at), (4) 100BFX ST; LEH1104A-2SFP: (4) RJ-45 10/100 PoE+ (802.3at), (2) 100BFX SFP; LEH1104A-2GSFP: (4) RJ-45 10/100 PoE+ (802.3at), (2) GE SFP
Console Port	(1) DB9 RS-232

Physical

Alarm Contact	LEH900 Series: (1) Relay output with current 1A @ 24 VDC; LEH1000 Series, LEH1100 Series: (1) Relay output with current 1A @ 250 VAC
Enclosure	IP30 aluminum
Indicators	Per unit: (3) Power Status LEDs: Power 1, Power 2, Power 3; Per port: 10/100TX, 100FX: LINK/ACT, 10/100/1000TX, 1000SX/LX/1000SX/SFP: LINK/ACT, Speed

Power	Power input:
	 LEH900 Series: Redundant power inputs:
	     Terminal block: 12 to 48 VDC;
	     DC jack: 12 VDC;
	 LEH1000, LEH1100 Series: Redundant power inputs:
	     Terminal block: 47 to 57 VDC;
	     DC jack: 47 to 57 VDC;
	 LEH900 series also has: Power consumption: 11 W max. at 12 VDC, 0.46 A at 24 VDC;
	 LEH1000 series also has: Power consumption: Device 15 W max. (without PoE),
	     PoE power budget: 181.6 W max.,
	     PoE power output: Ports 1–8: IEEE 802.3af: Up to 15 W/port, 47–57 VDC
	 LEH1100 Series also has: Power consumption: Device 15 W max. (without PoE),
	     PoE power budget: 181.6 W max.,
	     PoE power output: Ports 1–4: IEEE 802.3at: Up to 30 W/port, 50–57 VDC
	 NOTE: All models support overload current protection and reverse polarity protection.

Environmental	Temperature: Operating: -40 to +167° F (-40 to +75° C); Storage: -40 to +185° F (-40 to +85° C); Humidity: 5 to 95%, noncondensing
Dimensions	5.71"H x 2.36"W x 4.92"D (14.5 x 6 x 12.5 cm)
Weight	2.42 lb. (1.1 kg)

Approvals	Standards: IEEE 802.3 10BASE-T,
	     IEEE 802.3u 100BASE-T, 100BASE-FX,
	     IEEE 802.3ab 1000BASE-T,
	     IEEE 802.3z 1000BASE-SX/LX;
	 Safety:
	     UL® 508;
	 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),
	       EN61000-6-2;
	 Environmental Test:
	     IEC60068-2-6 Fc (vibration),
	     IEC60068-2-27 Ea (shock),
	     Federal Standard 101C Method 5007.1 (free fall);
	 Environmental Requirements:
	     Railway applications: EN50121-4,
	     Traffic control equipment: NEMA TS1/2

Hardened Managed Ethernet Switches (LEH900, LEH1000, LEH1100 Series)

Ordering Information: Hardened Ethernet Switches

Part Number	Description	Compatible SFP Modules
LEH900 Series		
LEH908A	8 ports 10/100, DC power	—
LEH906A-2MMSC	6 ports 10/100, 2 ports 100BFX MM, SC, DC power	—
LEH906A-2MMST	6 ports 10/100, 2 ports 100BFX MM, ST, DC power	—
LEH906A-2SFP	6 ports 10/100, 2 ports 100BFX, SFP, DC power	LFP401, LFP402, LFP106, LFP102, LFP403, LFP404, LFP416
LEH906A-2GSFP	6 ports 10/100, 2 ports GE, SFP, DC power	LFP411, LFP412, LFP413, LFP414, LFP416
LEH1000 Series		
LEH1008A	8 ports 10/100 PoE (802.af), DC power	—
LEH1008A-2MMSC	8 ports 10/100 PoE (802.af), 2 ports 100BFX, SC, DC power	—
LEH1008A-2MMST	8 ports 10/100 PoE (802.af), 2 ports 100BFX, ST, DC power	—
LEH1008A-2SFP	8 ports 10/100 PoE (802.af), 2 ports 100BFX, SFP, DC power	LFP401, LFP402, LFP106, LFP102, LFP403, LFP404, LFP416
LEH1008A-2GSFP	8 ports 10/100 PoE (802.af), 2 ports GE, SFP, DC power	LFP411, LFP412, LFP413, LFP414, LFP416
LEH1100 Series		
LEH1104A-4MMSC	4 ports 10/100 PoE+ (802.at), 4 ports 100BFX, SC, DC power	—
LEH1104A-4MMST	4 ports 10/100 PoE+ (802.at), 4 ports 100BFX, ST, DC power	—
LEH1104A-2SFP	4 ports 10/100 PoE+ (802.at), 4 ports 100BFX, SFP, DC power	LFP401, LFP402, LFP106, LFP102, LFP403, LFP404, LFP416
LEH1104A-2GSFP	4 ports 10/100 PoE+ (802.at), 2 ports GE, SFP, DC power	LFP411, LFP412, LFP413, LFP414, LFP416
Ordering Information: SFP Modules		**Compatible Hardened Switches**
LFP401	SFP, 155-Mbps Fiber with Extended Diagnostics, 850-nm Multimode, LC, 2 km	LEH906A-2SFP, LEH1008A-2SFP, LEH1104A-2SFP
LFP402	SFP, 155-Mbps Fiber with Extended Diagnostics, 1310-nm Multimode, LC, 2 km	LEH906A-2SFP, LEH1008A-2SFP, LEH1104A-2SFP
LFP403	SFP, 155-Mbps Fiber with Extended Diagnostics, 1310-nm, Single-Mode, LC, 30 km	LEH906A-2SFP, LEH1008A-2SFP, LEH1104A-2SFP
LFP404	SFP, 155-Mbps Fiber with Extended Diagnostics, 1310-nm Single-Mode, Plus, LC, 60 km	LEH906A-2SFP, LEH1008A-2SFP, LEH1104A-2SFP
LFP411	SFP, 1.25-Gbps Fiber with Extended Diagnostics, 850-nm Multimode, LC, 300 m	LEH906A-2GSFP, LEH1008A-2GSFP, LEH1104A-2GSFP
LFP412	SFP, 1.25-Gbps Fiber with Extended Diagnostics, 1310-nm Multimode, LC, 2 km	LEH906A-2GSFP, LEH1008A-2GSFP, LEH1104A-2GSFP
LFP413	SFP, 1.25-Gbps Fiber with Extended Diagnostics, 1310-nm Single-Mode, LC, 10 km	LEH906A-2GSFP, LEH1008A-2GSFP, LEH1104A-2GSFP
LFP414	SFP, 1.25-Gbps Fiber with Extended Diagnostics, 1310-nm Single-Mode, LC, 30 km	LEH906A-2GSFP, LEH1008A-2GSFP, LEH1104A-2GSFP
LFP416	SFP with SGMII Interface, 1.25 Gbps, Copper, 10/100/1000BASE-T, Extended Diagnostics	LEH906A-2SFP, LEH1008A-2SFP, LEH1104A-2SFP, LEH906A-2GSFP, LEH1008A-2GSFP, LEH1104A-2GSFP

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	LEH908A, LEH906A-2MMSC, LEH906A-2MMST, LEH906A-2SFP, LEH906A-2GSFP
MDR-40-24	DIN Rail Power Supply, 40 Watts, 24 VDC	LEH908A, LEH906A-2MMSC, LEH906A-2MMST, LEH906A-2SFP, LEH906A-2GSFP
MDR-40-48	DIN Rail Power Supply, 40 Watts, 48 VDC	LEH1008A, LEH1008A-2MMSC, LEH1008A-2MMST, LEH1008A-2SFP, LEH1008A-2GSFP, LEH1104A-4MMSC, LEH1104A-4MMST, LEH1104A-2SFP, LEH1104A-2GSFP
SDR-240-48	DIN Rail Power Supply, 240 Watts, 48 VDC	LEH1008A, LEH1008A-2MMSC, LEH1008A-2MMST, LEH1008A-2SFP, LEH1008A-2GSFP, LEH1104A-4MMSC, LEH1104A-4MMST, LEH1104A-2SFP, LEH1104A-2GSFP

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