LEH1104A-2GSFP LEH1104A-4MMSC
LEH1104A-2SFP LEH1104A-4MMST

Hardened Managed Ethernet Switches Quick Start Guide

Available models

Part Number	Product Name	Description
LEH1100 Series		
LEH1104A-2GSFP	4-Port 10/100 Mbps PoE+ 2-Port GE SFP Hardened Managed Ethernet Switch	4 ports 10/100 PoE+, 2 ports GE SFP, DC power
LEH1104A-4MMSC	4-Port 10/100 Mbps PoE+ 4-Port 100-Mbps MMSC Hardened Managed Ethernet Switch	4 ports 10/100 PoE+, 4 ports 100BFX, SC, DC power
LEH1104A-4MMST	4-Port 10/100 Mbps PoE+ 4-Port 100-Mbps MMST Hardened Managed Ethernet Switch	4 ports 10/100 PoE+, 4 ports 100BFX, ST, DC power
LEH1104A-2SFP	4-Port 10/100 Mbps PoE+ 2-Port 100-Mbps SFP Hardened Managed Ethernet Switch	4 ports 10/100 PoE+, 4 ports 100BFX, SFP, DC power

This quick start guide describes how to install and use the hardened Managed Ethernet Switch. Designed for rugged environments, Hardened Managed Ethernet Switches provide reliable switching in industrial areas constrained by space.

Functional Description

- Meets NEMA TS1/TS2 Environmental requirements such as temperature, shock, and vibration for traffic control equipment.
- Meets EN61000-6-2 & EN61000-6-4 EMC Generic Standard Immunity for industrial environments.
- Port 1–Port 4 support IEEE 802.3at Power over Ethernet (PoE+) Power Sourcing Equipment (PSE).
- 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
- Supports Command Line Interface in RS-232 consoles.
- 100BASE-FX: Multimode SC or ST type; single-mode SC or ST type. 100BASE-BX: WDM single-mode SC type.
- 1000BASE-SX/LX: Multimode or single-mode SC type. 1000BASE-BX: WDM single-mode SC type.
- Supports 8192 MAC addresses. Provides 2M bits memory buffer.
- Alarms for power and port link failure by relay output.
- Supports DIN-rail or panel mounting installation.
- Power Supply: Redundant DC terminal block power inputs or 12-VDC DC jack, 100–240 VAC external power supply.
- Supports RS-232 console, Telnet, SNMP v1 & v2c & v3, RMON, web browser, and TFTP management.
- Supports IEEE 802.3/802.3u/802.3ab/802.3z/802.3x, auto-negotiation, 1000-Mbps full duplex, 10-/100-Mbps full/half duplex, auto MDI/MDIX.
- Store-and-forward mechanism. Full wire-speed forwarding rate.

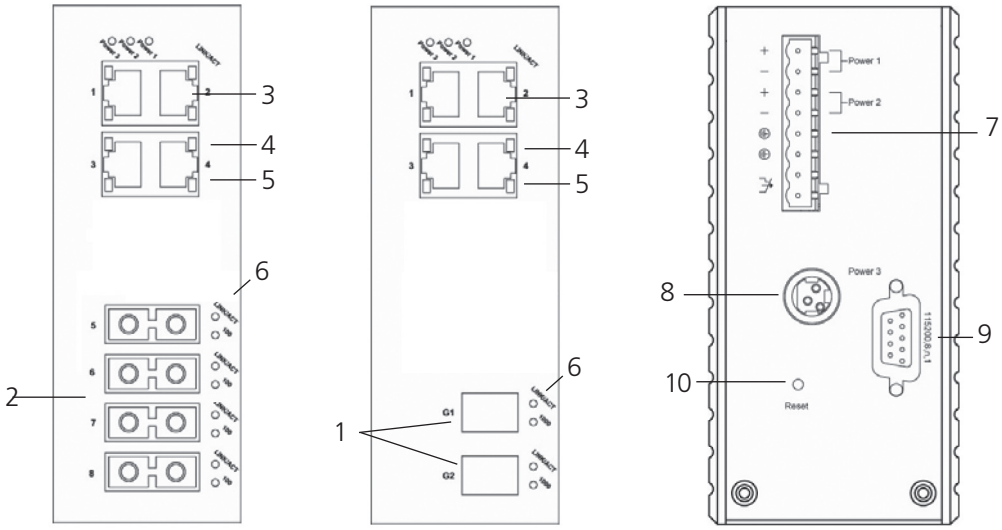
Customer Support Information

Order toll-free in the U.S.: Call 877-877-BBOX (outside U.S. call 724-746-5500)
FREE technical support 24 hours a day, 7 days a week: Call 724-746-5500 or fax 724-746-0746
Mailing address: Black Box Corporation, 1000 Park Drive, Lawrence, PA 15055-1018
Web site: www.blackbox.com • E-mail: info@blackbox.com

- Operating voltage and max. current consumption: 0.31 A @ 48 VDC.
  Power consumption: 181.6 W max. (full load with PoE); 15 W max. (without PoE).
- Field wiring terminal: Use copper conductors only, 60/75, 12-24 AWG torque value 7 lb-in.
- -40 to 167° F (-40 to +75° C) operating temperature range. Tested for functional operation @ -40 to +185° F (-40 to +85° C). UL508 Industrial Control Equipment certified maximum surrounding air temperature @ 167° F (75° C).

Physical Description

Designed for rugged environments, Hardened Managed Ethernet Switches provide reliable switching in industrial areas.



Front panel of LEH1104A-4MMSC or LEH1104A-4MMST

Front panel of LEH1104A-2SFP or LEH1104A-2GSFP

Back panel (all models)

Figure 1. LEH1100 Series Hardened Managed Ethernet Switch.

LEH1100 Series switches components

Number in Figure 1	Product Name	Description
1	Ports G1 and G2	LEH1104A-2GSFP: (2) GE SFP ports; LEH1104A-2SFP: (2) SFP ports *NOTE: These connectors are not present on LEH1104A-4MMSC and LEH1104A-4MMST switches.*
2	(4) ST or SC fiber ports	LEH1104A-4MMSC: (4) 10/100 MM SC ports; LEH1104A-4MMST: (4) 10/100 MM ST ports *NOTE: These connectors are not present on LEH1104A-2GSFP and LEH1104A-2SFP switches.*
3	(4) RJ-45 ports	All LEH1100 Series switches: 10/100 Mbps PoE+ ports
4	(4) TX LEDs	See the Indicators table on the next page.
5	(4) RX LEDs	See the Indicators table on the next page.
6	Per port: (2) LINK/ACT LEDs	See the Indicators table on the next page.
7	(1) Phoenix connector	Terminal block for Power 1, Power 2, and Ground
8	(1) DC power connector	Links to DC power source
9	(1) DB9 connector	Used for RS-232 serial control
10	(1) Reset button	Press to reset the switch to factory defaults.

LEH1100 Series Switches Indicators.

LED	State	Indication
Power 1	Steady ON (Green)	Power ON
	Off	Power OFF
Power 2	Steady ON (Green)	Power ON
	Off	Power OFF
Power 3	Steady ON (Green)	Power ON
	Off	Power OFF
10/100BASE-TX, 100BASE-FX/BX		
LINK/ACT	Steady ON (Green)	A valid network connection is established.
	Flashing	Transmitting or receiving data. *NOTE: ACT stands for activity.*
100	Steady ON (Green)	Connection at 100-Mbps speed.
10/100/1000BASE-SX/LX/BX		
LINK/ACT	Steady ON (Green)	A valid network connection is established.
	Flashing	Transmitting or receiving data. *NOTE: ACT stands for activity.*
1000	Steady ON (Green)	Connection at 1000-Mbps speed.

Power Input Assignment		
Power 3	12 VDC	DC jack
Power 2	+	12–48 VDC
	-	Power ground
Power 1	+	12–48 VDC
	-	Power ground
	Earth ground	
Relay output rating		1 A @ 24 VDC
Relay Alarm Assignment		
Fault	Warning signal disable for the following: • The relay contact closes if Power 1 and Power 2 both fail, but Power 3 is ON. • The relay contact closes if Power 3 fails, but Power 1 and Power 2 are ON.	

Console Configuration

STEP 1: Connect to the switch console.

Connect the DB9 straight cable to the RS-232 serial port of the device and the RS-232 serial port of the terminal or computer running the terminal emulation application. For direct access to the administration console, connect a terminal or a PC equipped with a terminal-emulation program (such as HyperTerminal) directly to the switch console port.

STEP 2: Configure the terminal-emulation program settings.

When using the management method, configure the terminal-emulation program to use the following parameters (you can change these settings after login):

Default parameters:

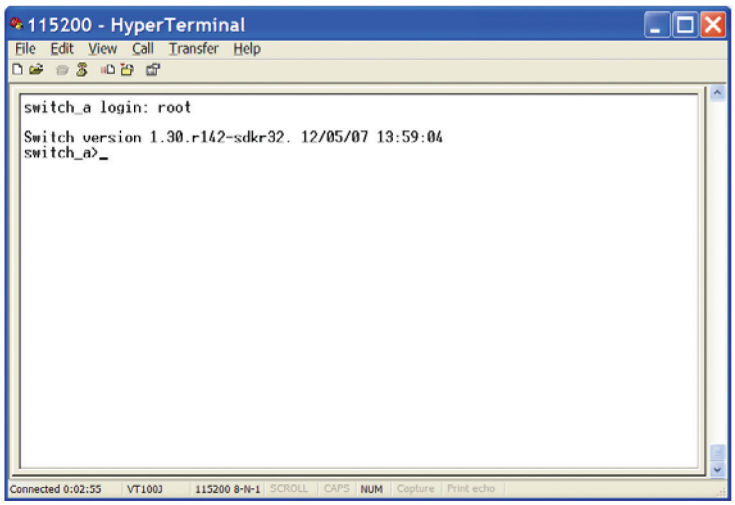
- 115,200 bps
- 8 data bits
- No parity
- 1 stop bit

STEP 3: Press the "Enter" key.

The Command Line Interface (CLI) screen should appear.

STEP 4: Log on to Exec Mode (View Mode).

At the "switch_a login:" prompt, type in "root" and press <Enter> to log on to Exec Mode (or View Mode). The "switch_a>" prompt will show on the screen.



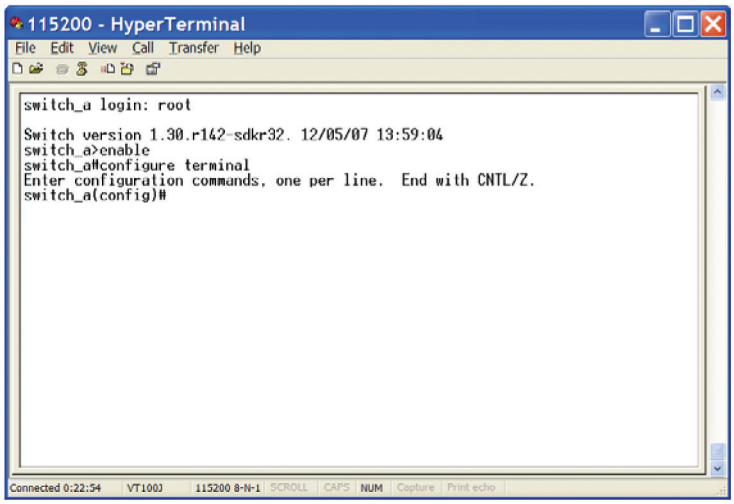
Exec mode (View mode) screen.

STEP 5: Log on to Privileged Exec Mode (Enable Mode).

At the "switch_a>" prompt, type in "enable" and press <Enter> to log on to Privileged Exec Mode (or Enable Mode). The "switch_a#" prompt will show on the screen.

STEP 6: Log on to Configure Mode (Configure Terminal Mode).

At the "switch_a#" prompt, type in "configure terminal" and press <Enter> to log on to Configure Mode (or Configure Terminal Mode). The "switch_a(config)#" prompt will show on the screen.

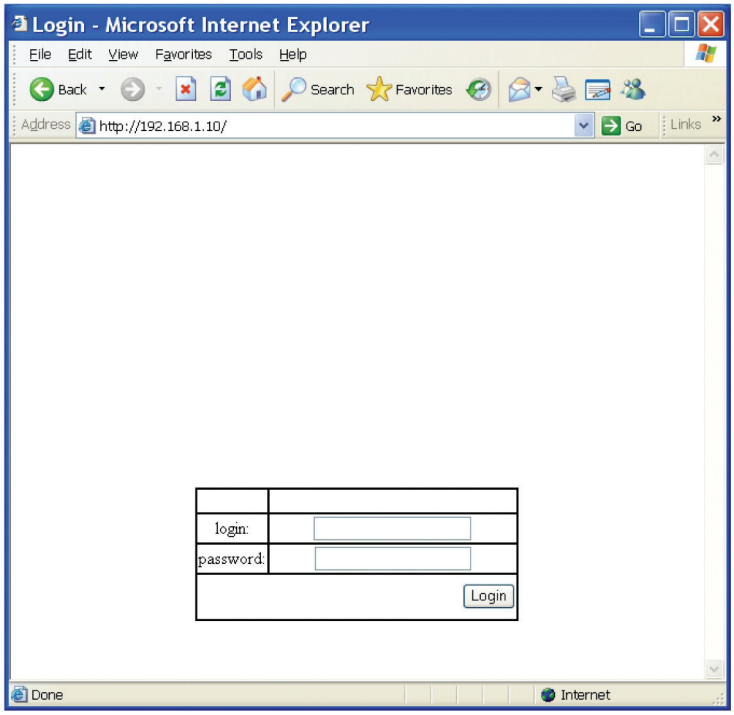


Configure terminal mode screen.

Web Configuration

STEP 1: Login to the switch.

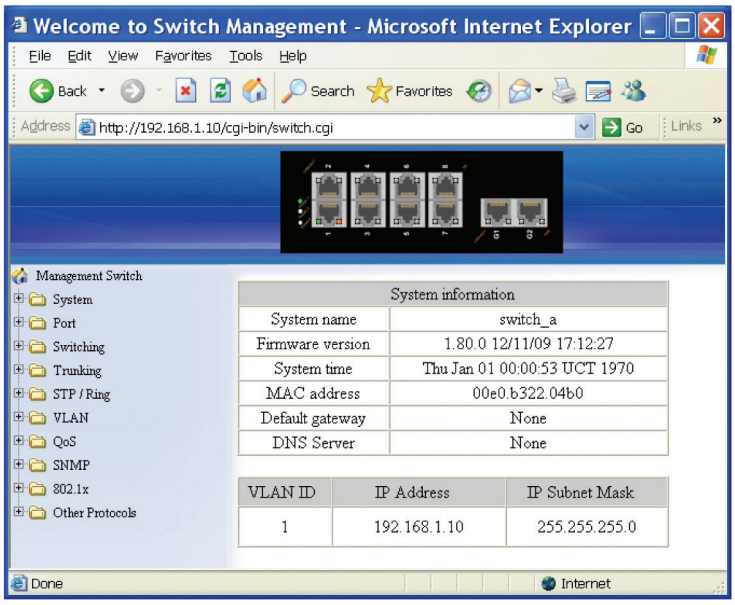
Specify the default IP address (192.168.1.10) of the switch in the Web browser. A login window will be shown as below:



Login window.

STEP 2: Log in using the factory default settings.

- Enter the factory default login ID: root.
- Enter the factory default password (no password).
- Click on the "Login" button to log on to the switch.



Welcome screen.

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