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LANTRONIX®

100-120 VAC

200-240 VAC

SLB™ Branch Office Manager User Guide

Part Number 900-671-R
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Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his or her own expense, will be required to take whatever measures may be required to correct the interference.

Note: *This equipment has been tested and found to comply with the limits for Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this user guide, may clause interference to radio communications. Operation of this equipment in a residential area is likely to cause interference, in which case the user will be required to correct the interference at his own expense.*

The user is cautioned that changes and modifications made to the equipment without approval of the manufacturer could void the user's authority to operate this equipment.

Changes or modifications to this device not explicitly approved by Lantronix will void the user's authority to operate this device.

Revision History

Date	Rev.	Comments
April 2013	A	Initial Release (6.0).
June 2014	B	Added the new 200-240 VAC SLB model.
August 2014	C	Updated for firmware release 6.1.
January 2015	D	Updated technical specification information.
May 2016	E	Updated safety information.
December 2016	F	Updated to firmware revision 6.3.0.0, which includes: ◆ Removal of java from the WebSSH and WebTelnet application ◆ Addition of transport security layer (TLS) 1.1 and 1.2 ◆ Upgrade of web SSL certificate to 2048 bits ◆ Option to disable SSH DSA keys ◆ Zero touch provisioning ◆ Custom SSL certificate for the web ◆ Compliance information updates
June 2018	G	Updated to firmware revision 6.5.0.0RC19.

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1: About this Guide

Purpose and Audience

This guide provides the information needed to install, configure, and use the Lantronix® SLB™ branch office manager. The SLB device is for IT professionals who must remotely and securely configure and administer servers, routers, switches, telephone equipment, or other devices equipped with a serial port for facilities that are typically remote branch offices or “distributed” IT locations.

Summary of Chapters

The remaining chapters in this guide include:

Chapter	Description
Chapter 2: Introduction	Describes the SLB models, their main features, and the protocols they support.
Chapter 3: Installation	Provides technical specifications; describes connection formats and power supplies; provides instructions for installing the SLB unit in a rack.
Chapter 4: Quick Setup	Provides instructions for getting your SLB device up and running and for configuring required settings.
Chapter 5: Web and Command Line Interfaces	Describes the web and command line interfaces available for configuring the SLB branch office manager. The configuration chapters (6-12) provide detailed instructions for using the web interface and include equivalent command line interface commands.
Chapter 6: Basic Parameters	Provides instructions for configuring network ports, firewall and routing settings, and the date and time.
Chapter 7: Services	Provides instructions for enabling and disabling system logging, SSH and Telnet logins, SNMP, SMTP, and the date and time.
Chapter 8: Device Ports	Provides instructions for configuring global device port settings, individual device port settings, and console port settings.
Chapter 9: USB Port	Provides instructions for using the USB port.
Chapter 10: Connections	Provides instructions for configuring connections and viewing, updating, or disconnecting a connection.
Chapter 11: User Authentication	Provides instructions for enabling or disabling methods that authenticate users who attempt to log in via SSH, Telnet, or the console port. Provides instructions for creating custom menus.
Chapter 12: Maintenance	Provides instructions for upgrading firmware, viewing system logs and diagnostics, generating reports, and defining events. Includes information about web pages and commands used to shut down and reboot the SLB unit.
Chapter 13: Application Examples	Shows how to set up and use the SLB branch office manager in three different configurations.
Chapter 14: Command Reference	Lists and describes all of the commands available on the SLB command line interface

Chapter (continued)	Description
Appendix A: Bootloader	Lists and describes the commands available for the bootloader command line interface.
Appendix B: Security Considerations	Provides tips for enhancing SLB security.
Appendix C: Adapters and Pinouts	Includes adapter pinout diagrams.
Appendix D: Protocol Glossary	Lists the protocols supported by the SLB unit with brief descriptions.
Appendix E: Compliance Information	Provides information about the SLB device's compliance with industry standards.

Additional Documentation

Visit the Lantronix Web site at www.lantronix.com/support/documentation for the latest documentation and the following additional documentation.

Document	Description
SLB Branch Office Manager Quick Start	Describes the steps for getting the SLB unit up and running.
SLB Branch Office Manager Online Help for the Command Line Reference	Provides online help for configuring the SLB device using commands.
SLB Branch Office Manager Online Help for the Web Interface	Provides online help for configuring the SLB unit using the web page.

2: Introduction

The SLB branch office manager enables IT system administrators to manage remote servers and IT infrastructure equipment securely over the Internet. This innovative hybrid device combines the capabilities of the award-winning secure console manager with an 8-port remote power management solution and an Ethernet switch into a compact, 1U rack-mountable appliance.

Features

Console Management

- 8 serial ports for console connectivity
- Enables system administrators to remotely manage devices with serial console ports, e.g., Linux, Unix, and recent versions of Windows servers, routers, switches, telecom, and building access equipment.
- Provides data logging, monitoring, and secure access control via the Internet

Power Management Outlets for Power Connectivity

- 8 outlets for power connectivity
- Provides ability to control power individually to all attached equipment
- Provides on/off/reboot control
- Per port power consumption monitoring
- SLB882KIT-15P and SLB882KIT-20P outlets support NEMA 5-15P & 5-20P plugs
- SLB8824KIT-AP and SLB8824KIT-EU outlets support C14 plugs
- Ensures safe power distribution and reduces in-rush current overload

Power Inlets

- SLB882KIT-xx Dual 100-120 VAC power inlets
- SLB8824KIT-xx Dual 200-240 VAC power inlets
- Provides automatic power switch-over when both primary and secondary power inlet sources are used

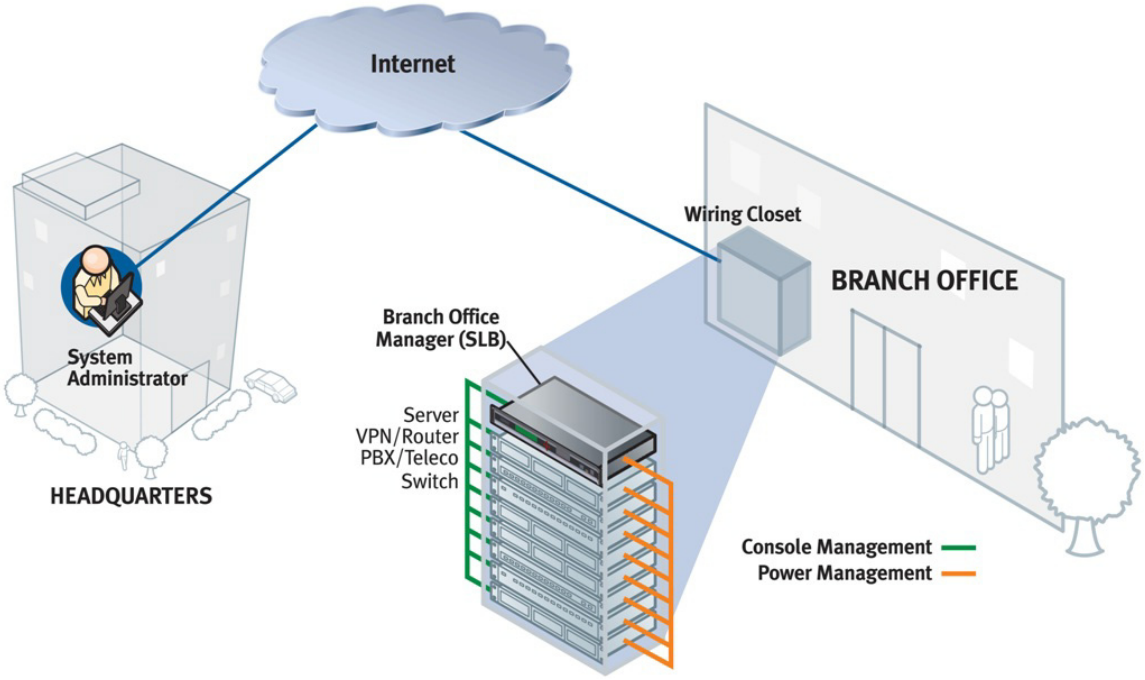
Integration with Other Secure Lantronix Products

- Can be combined with the *Lantronix Spider*™ kkvm-over-IP switch to provide a complete all-in-one "distributed IT" management solution.
- Can integrate seamlessly with the vSLM™ management appliance software for a complete end-to-end Out-of-Band (OOB) management solution.

Internal Temperature Sensor

- System administrators can be alerted if temperature goes out of range.

Figure 2-1 Branch to Enterprise Integration Concept



Designed for Branch Offices and Similar Environments

Designed to meet the specific needs of the remote branch offices and environments alike, the SLB branch office manager conserves rack space and reduces costs by enabling system administrators at a main corporate facility to manage the IT equipment distributed among branch offices simply and cost-effectively.

Branch offices are facilities that are typically remote or "distributed IT" locations, likely located off-site of corporate headquarters or large-scale enterprise facilities. These distributed facilities typically do not have an on-site maintenance staff or IT System Administrator.

Typically, the branch office environment has some of the following characteristics:

- Space is limited to 1U rack space or shelf mounted desktop unit
- Closet-mounted or wall-attached rack
- Limited air and power conditioning
- Limited number of network devices and servers
- No on-site maintenance staff
- Ethernet or dial-up modem access is required

Typical Equipment

You can configure, administer, and manage IT equipment in a variety of ways, but most devices have one method in common: an RS-232 serial port, sometimes called a console, auxiliary, or management port. These ports are often accessed directly by connecting a terminal or laptop to them, meaning that the user typically must be in the same physical location as the equipment. Eliminating the need for a physical presence, the Lantronix SLB unit provides remote access to the equipment from anywhere there is a network or modem connection.

The SLB branch office manager can access and administer many types of equipment, such as:

- Servers: Unix, Linux, Windows Server 2003 or higher, and others
- Networking equipment: Routers, switches, storage networking
- Telecom: PBX, voice switches
- Other systems with serial interfaces: Heating/cooling systems, security/building access systems, UPS, medial device.

Types of Business

The SLB unit is used in many types of environments, for example:

- Banking and finance
- Insurance companies
- Healthcare
- Retail Sales
- Information Technology
- Education and campus style facilities
- Hospitality
- Manufacturing Facilities
- Base Station Control and Management

Benefits

The key benefits of using the SLB branch office manager:

- Saves space: Compact design merges the functionality of two solutions into a 1U rack solution, reducing required rack space and total cost of ownership.
- Saves money: Enables remote management and troubleshooting without sending a technician onsite, resulting in reduced travel costs and increased network uptime.
- Saves time: Provides instant access and reduces response time, improving efficiency.
- Simplifies access: Enables 24/7 access to your equipment securely and remotely after hours and on weekends and holidays-without having to schedule visits or arrange for off-hour access.
- Protects assets: Provides the highest levels of encryption and security features (authentication, authorization, and IP filters) to ensure that your IT infrastructure and data assets are protected.

The SLB unit also provides features such as convenient text menu systems, break-safe operation, port buffering (logging), remote authentication, and Secure Shell (SSH) access. Dial-up modem support ensures access when the network is not available.

Models

The SLB branch office manager has the following hardware components:

- The 100-120 VAC SLB model is available in 100-120 VAC (50-60 Hz) NEMA 5-20R type outlets. This model also includes a USB port.
- The 200-240 VAC SLB model is available in 200-240 VAC (50-60 Hz) IEC C13 type outlets. This model also includes a USB port.
- **Chassis:** The SLB unit has a 1U tall, self-contained rack-mountable chassis.
- **Power Outlets:** Eight outlets allow power management and control (on/off/reboot) of the attached equipment using a simple web or command line interface.
- **Serial Device Ports:** Eight serial RS-232C (EIA-232) device ports are for remote console management of the attached equipment. These match the RJ45 pin-outs of the console ports of many popular devices found in a network environment, and where different can be converted using Lantronix adapters. See the appendix, *Appendix C: Adapters and Pinouts* for more information on serial adapters and pin-outs.
- **Ports and Modem:** The SLB branch office manager has two 10/100 Ethernet ports (referred to in this user guide as Eth1 and Eth2) in the back and a front panel serial console port (RJ45). The SLB unit also includes a USB type A port in the front panel and an internal v.92 modem.

Table 2-2 SLB Models

Model	Description
100-120 VAC SLB	Branch Office Manager, 8 device ports, 8 power outlets (100-120 VAC, NEMA 5-20R type), 2 AC power inlets
200-240 VAC SLB	Branch Office Manager, 8 device ports, 8 power outlets (200-240 VAC, IEC C13 type), 2 AC power inlets

Figure 2-3 100-120 VAC SLB Unit

Figure 2-4 200-240 VAC SLB Unit

System Features

The SLB firmware has the following basic capabilities:

- Connects up to eight RS-232 serial consoles
- Controls power (on/off/reboot) of up to eight attached devices
- Per port current consumption monitoring
- Dual power inlets for failover
- Dual 10Base-T/100Base-TX Ethernet network compatibility
- Buffer logging to file
- Email and SNMP notification
- ID/Password security, configurable access rights
- Secure shell (SSH) security; supports numerous other security protocols
- Network File System (NFS) and Common Internet File System (CIFS) support for configuration files
- TCP, Telnet or SSH to a serial port by IP address per port or by IP address and TCP port number
- Configurable user rights for local and remotely authenticated users
- Built-in internal modem
- External USB modem and Flash Storage supported
- Sun break-safe (no unintentional break ever sent to attached servers)
- Simultaneous access on the same port-- "listen" and "direct" connect mode
- Local access through a console port
- Web administration (using most browsers)

Protocols Supported

The SLB branch office manager supports the TCP/IP network protocol as well as:

- TCP, SSH, Telnet, PPP and NFS for connections in and out of, and CIFS for incoming connections to the `\\<hostname>\public\config directory` of the SLB unit
- SMTP for mail transfer
- DNS for text-to-IP address name resolution
- SNMP with custom traps for remote monitoring and management
- FTP and SFTP for file transfers and firmware upgrades
- TFTP and HTTPS for firmware upgrades
- DHCP and BOOTP for IP address assignment
- HTTPS (SSL) for secure browser-based configuration
- NTP for time synchronization
- LDAP, NIS, RADIUS, CHAP, PAP, Kerberos, and TACACS+ for user authentication
- IPsec for VPN access

For brief descriptions of these protocols, see *Appendix D: Protocol Glossary*.

Access Control

The system administrator controls access to attached servers or devices by assigning access rights to up to 128 user profiles. Each user has an assigned ID, password, and access rights. Other user profile access options may include externally configured authentication methods such as RADIUS, TACACS+, NIS, and LDAP.

Power Outlet Control

With the SLB unit's built-in power management capability, system administrators can remotely control the power (on/off/reboot) individually to all IT equipment in the branch office, ensure safe power distribution, and reduce "in-rush" current overload. If SNMP traps are enabled, a trap (alarm) is sent if the total current for all outlets exceeds a threshold.

Device Port Buffer

The SLB branch office manager supports real-time data logging for each device port. The port can save the data log to a file, send an email notification of an issue, or take no action.

You can define the path for logged data on a port-by-port basis, configure file size and number of files per port for each logging event, and configure the device log to send an email alert message automatically to the appropriate parties indicating a particular error.

Configuration Options

You may use the backlit front-panel LCD display for initial setup and configuration and to view current network, console, and date/time settings, and get power outlet status.

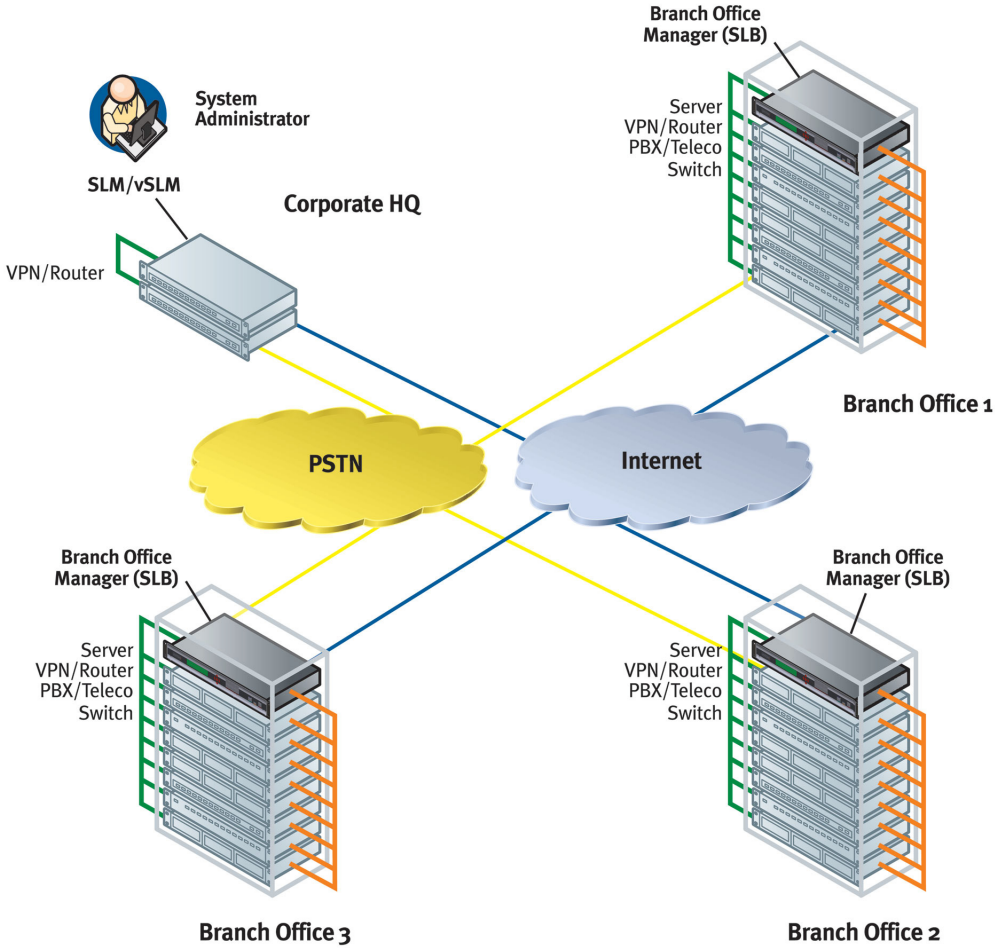
Both a web interface viewed through a standard browser and a command line interface (CLI) are available for configuring the SLB settings and monitoring performance.

Application Example

The figure below is an example deployment. An SLB unit is deployed in each branch office and an (optional) vSLM management appliance at the main office. The branch offices are interconnected (always on) by VPN routers overlaid on the Internet, and also interconnected (on demand) through the analog phone system.

The SLB unit provides remotely controlled and monitored AC power (orange), console management (green), and traditional, wired telephone network (PSTN) access (yellow).

Figure 2-5 Example Deployment



A system administrator, upon losing IP connectivity to a server, takes the following steps:

1. Views the server's Ethernet interface state information provided by the SLB branch office manager.
2. If the Ethernet interface is faulty, connects to the server's console port by means of the SLB web page or CLI (optionally via the vSLM management appliance) and checks the server's system parameters.
3. If the server is not responsive on the console port, commands the SLB to reboot the server's power.
4. If the entire branch office loses IP connectivity, dial in to the SLB to perform the diagnostic functions