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SLC™ 8000 Advanced Console Manager User Guide

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A 급 기기 (업무용방송통신기자재)	이 기기는 업무용 (A 급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

Revision History

Date	Rev.	Comments
March 2014	A	Preliminary release.
October 2014	B	Initial document for firmware release 7.1.0.0.
June 2015	C	Updated for firmware release 7.2.0.0. Changes include new operating atmosphere information and warning language in Chinese and Korean. Software changes include additions in Telnet, SSH and TCP timeout directions, number of sessions message, idle timeout message, VBUS enabling, assert DTR, run web server, added mounted column information for NFS Mounts, masked CHAP secret and DOD CHAP secret fields, USB devices in diagnostics and addition of SSH bit option. SSL settings were removed so the SSLv2 protocol option is no longer available.
June 2016	D	Updated for firmware release 7.3.0.0.
January 2017	E	Updated power cord information.
June 2017	F	Updated for firmware release 7.4.0.0 and for new dual SFP transceiver port or dual Ethernet port capability options. Updated the following: <ul style="list-style-type: none">◆ IPv6 Neighbor Table, Ethernet Bonding Status links, and IPv6 Forward Flag under Network Settings.◆ IKE v2, x.509 Certificate, Certificate Authority/Certificate File fore Remote Peer, Certificate Authority/Certificate File/Key File for Local Peer, SA Lifetime, Remote and Dead Peer settings under Network VPN.◆ Enable v1/v2c, Trap Version, Alarm Delay to SNMP, and Trap User Name, Password and Passphrase under SNMP Services.◆ Added ability change and reset BootCount, BootDelay and BootLimit.
September 2017	G	Updated part number.
February 2018	H	Updated for firmware release 7.5.0.0.
March 2018	J	Updated to include additional SLC hardware and new trap information for firmware release 7.5.0.0.
June 2018	K	Updated for firmware release 7.6.0.1R6.

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1: About this Guide

Purpose and Audience

This guide provides the information needed to install, configure, and use the Lantronix SLC™ 8000 advanced console manager. The SLC unit 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 SLC 8000 models, their main features, and the protocols they support.
Chapter 3: Installation	Provides technical specifications; describes connection form factors and power supplies; provides instructions for installing the SLC 8000 advanced console manager in a rack.
Chapter 4: Quick Setup	Provides instructions for getting your SLC unit 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 SLC 8000 advanced console 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 VPN.
Chapter 7: Services	Provides instructions for enabling and disabling system logging, SSH and Telnet logins, SNMP, SMTP, and the date and time.
Chapter 9: Device Ports	Provides instructions for configuring global device port settings, individual device port settings, and console port settings.
Chapter 8: USB/SD Card Port	Provides instructions for using the USB port.
Chapter 10: Remote Power Managers	Provides instructions for using RPMs.
Chapter 11: Connections	Provides instructions for configuring connections and viewing, updating, or disconnecting a connection.
Chapter 12: User Authentication	Provides instructions for enabling or disabling methods that authenticate users who attempt to log in via the web, SSH, Telnet, or the console port. Provides instructions for creating custom menus.
Chapter 13: 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 SLC 8000 advanced console manager.
Chapter 14: Application Examples	Shows how to set up and use the SLC unit in three different configurations.

Chapter (continued)	Description
Chapter 15: Command Reference	Lists and describes all of the commands available on the SLC command line interface
Appendix A: Security Considerations	Provides tips for enhancing SLC security.
Appendix B: Safety Information	Lists safety precautions for using the SLC 8000 advanced console manager.
Appendix C: Adapters and Pinouts	Includes adapter pinout diagrams.
Appendix D: Protocol Glossary	Lists the protocols supported by the SLC unit with brief descriptions.
Appendix E: Compliance Information	Provides information about the SLC 8000 advanced console manager'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
<i>SLC 8000 Advanced Console Manager Quick Start Guide</i>	Provides accessories and part number information, hardware installation instructions, directions to connect the SLC unit, and network IP configuration information.
<i>SLC 8000 Advanced Console Manager Product Brief</i>	Provides product overview information and specifications.

2: Introduction

The SLC 8000 advanced console manager enables IT system administrators to manage remote servers and IT infrastructure equipment securely over the Internet.

IT equipment can be configured, administered, and managed in a variety of ways, but most devices have one of two methods in common: via USB port and/or via 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 administrator must be in the same physical location as the equipment. The SLC 8000 advanced console manager gives the administrator a way to access them remotely from anywhere there is a network or modem connection. The SLC 8000 unit can accommodate up to three I/O modules (16-port USB I/O module and/or 16-port RJ45 I/O module.)

Many types of equipment can be accessed and administered using console managers including:

- ◆ **Servers:** Unix, Linux, Windows, 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 devices.

The key benefits of using console managers:

- ◆ **Saves money:** Enables remote management and troubleshooting without sending a technician onsite. Reduces travel costs and downtime costs.
- ◆ **Saves time:** Provides instant access and reduces response time, improving efficiency.
- ◆ **Simplifies access:** Enables you to access equipment securely and remotely after hours and on weekends and holidays—without having to schedule visits or arrange for off-hour access.
- ◆ **Protects assets:** Security features provide encryption, authentication, authorization, and firewall features to protect your IT infrastructure while providing flexible remote access.

The SLC advanced console manager 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.

Features

Console Management

- ◆ Up to 48 serial RJ45 RS-232 and/or USB type A ports for console connectivity
Note: USB ports are generally intended to connect directly to USB console ports. It is also possible to connect a USB to serial adapter to them to connect to serial console ports, if needed.
- ◆ Enables system administrators to remotely manage devices with serial and/or USB console ports, e.g., Linux, Unix, and recent versions of Windows servers, routers, telecom, and switches with RS-232C (now EIA-232) or USB compatible serial consoles in a 1U-tall rack space. All models have two Ethernet ports, called Eth1 and Eth2 in this document.
- ◆ Provides data logging, monitoring, and secure access control via the Internet

Power

- ◆ Universal AC power input (100-240V, 50/60 Hz) or 20-72 VDC power input hardware option
- ◆ Convection cooled, silent operation, low power consumption

Hardware

- ◆ **SLC Chassis:** The SLC 8000 advanced console manager has a 1U-tall (1.75 inch), self-contained rack-mountable chassis.
- ◆ **Three I/O Module Bays** are available on the back of the SLC unit, and able to accommodate a combined total of 48 device ports depending on the number of I/O modules installed. See [Figure 2-2](#). Configuration possibilities are listed below. See [Appendix C: Adapters and Pinouts on page 378](#) for more information on serial adapters and pin-outs, and also [Table 3-8 on page 40](#) which describes different I/O module configurations.
 - **Up to three 16-port RJ45 I/O modules** can be installed to provide a maximum of forty-eight serial RS-232C (EIA-232) device ports. The serial RJ45 ports 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.
 - **Up to three 16-port USB I/O modules** can be installed to provide a maximum of forty-eight USB I/O device ports.
 - **A combination of 16-port USB I/O modules and 16-port RJ45 I/O modules** can be installed to provide up to forty-eight serial RJ45 ports and/or USB type A ports, according to the type and number of I/O modules installed on the back of the SLC unit.

Note: The SLC8008 ships with an 8-port serial module that must be installed in the first bay. This module is not available separately. See [Table 3-8 on page 40](#) which describes different I/O module configurations.
- ◆ **Network Interface** on the back left side of the SLC unit can accommodate either a factory-installed:
 - Dual 10/100/1000 Base-T Ethernet port I/F card. Ethernet ports are referred to as Eth1 and Eth2 in the user interface and this user guide.
 - Dual SFP port I/F card to support 1 Gigabit-capable single or multi-mode fiber or copper SFP transceiver modules. Single and multi-mode SFP transceiver modules are referred to as F1 in the user interface and this user guide.

Notes:

- ◆ *1000 BASE-T SFP transceiver copper modules need to use RX_LOS signal within SFP interface pins for the indicator on Link Status LED. Not all vendor 1000 Base-T SFP modules provide this feature. Qualified copper SFP transceiver modules with this feature include the following: the Finisar 1000 Base-T Copper SFP Transceiver FCLF8250P2BTL and the Fiberstore Cisco SFP-GE-T Compatible 1000 Base-T SFP RJ-45 100m Transceiver.*
- ◆ *SFP transceiver modules are provided by users according to fiber mode and brand preferences. Network ports and the SFP port have LEDs to indicate link and activity status. If a single mode and a multi-mode are both installed the SLC 8000 unit, the device can be configured to utilize one mode at a time.*

- ◆ **Front Console Panel Ports** (see [Figure 2-1](#))
 - One serial console port (RJ45) for VT100 terminal or PC with emulation with LED for activity indicators
 - Two USB type A ports for use with flash drives or external USB modems
 - Optional internal modem
 - One Secure Digital (SD) memory card slot (SD card provided by the user)
 - One RJ11 modem port on the front panel
- Note:** Use of the RJ11 modem port requires installation of an optional modem card (Lantronix part number 56KINTMODEM-01) - see [Modem Installation on page 42](#).
- LCD display and keypad
- ◆ 256 KB-per-port buffer memory for serial device ports
 - ◆ Software reversible device port pinouts
 - ◆ Either universal AC power input (100-240V, 50/60 Hz) or DC power input (20-72 VDC)

Note: For more detailed information, see [Chapter 4: Quick Setup on page 49](#).

Figure 2-1 SLC 8048 Unit (Front Side) - Part Number SLC 804812N-01-S

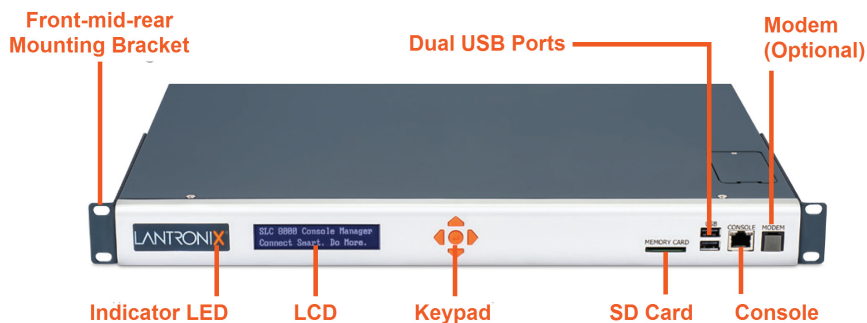
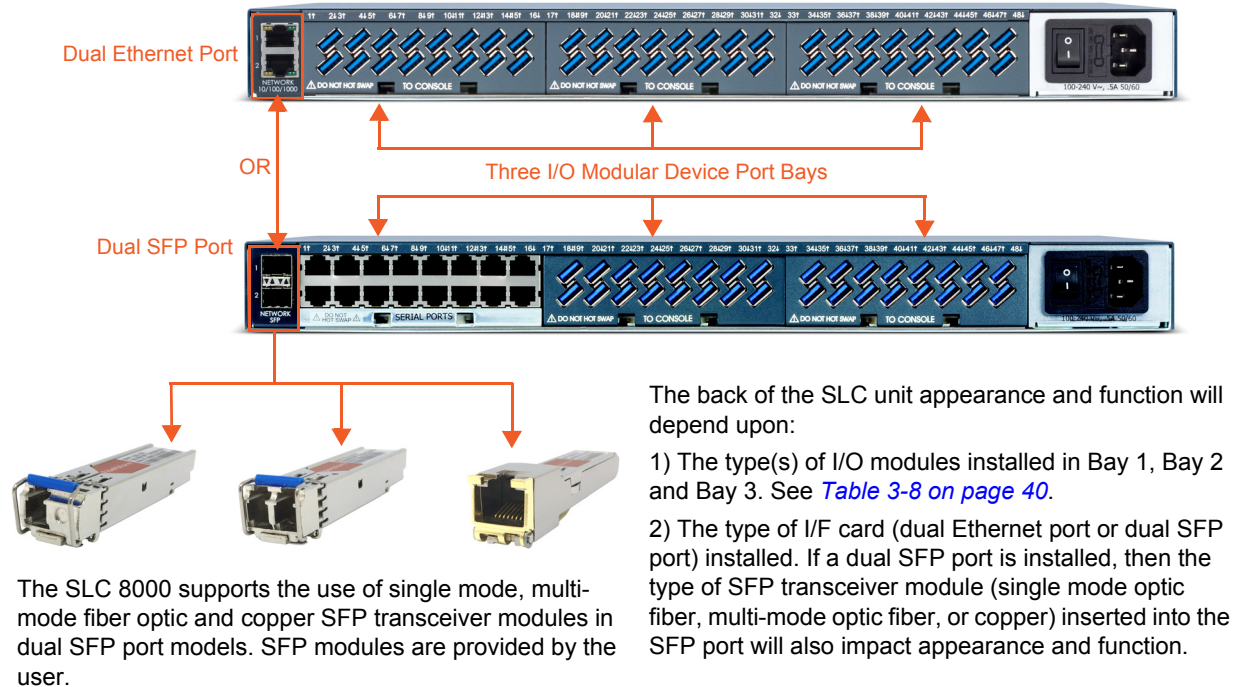


Figure 2-2 SLC 8048 Unit Samples (Back Side) - Part Number SLC80482201S

Note: Please contact [Lantronix Technical Support](#) to verify the compatibility of a specific transceiver as not all are compatible.



System Features

The SLC 8000 firmware has the following basic capabilities:

- ◆ Software reversible device port pinouts (serial RJ45 ports only)
- ◆ Connects up to 48 RS-232 serial consoles or up to 48 USB consoles
- ◆ Support use of simple straight-through cables for use with Cisco, Sun and other devices that use the “Cisco” RJ-45 serial pinouts
- ◆ 10/100/1000 Base-T Ethernet network compatibility or SFP ports to support single or multi-mode 1 Gigabit SFP transceiver modules
- ◆ 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
- ◆ RAW 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
- ◆ Supports an external modem