Part No. 060118-10, Rev. A
December 2000

OmniStack® 8008
Getting Started Guide

SwitchExpertSM[SM] Service Programs: An Alcatel service agreement brings your company the assurance of 7x24 no-excuses technical support. You'll also receive regular software updates to maintain and maximize your Alcatel product's features and functionality and on-site hardware replacement through our global network of highly qualified service delivery partners. Additionally, with 24-hour-a-day access to Alcatel's Service and Support web page, you'll be able to view and update any case (open or closed) that you have reported to Alcatel's technical support, open a new case or access helpful release notes, technical bulletins, and manuals. For more information on Alcatel's Service Programs, see our web page at www.ind.alcatel.com, call us at 1-800-995-2696, or email us at switchexpert@ind.alcatel.com.

This Manual documents OmniStack 8008 hardware and software.
The functionality described in this Manual is subject to change without notice.

26801 West Agoura Road
Calabasas, CA 91301
(818) 880-3500 FAX (818) 880-3505
info@ind.alcatel.com
US Customer Support-(800) 995-2696
International Customer Support-(818) 878-4507
Internet-http://www.ind.alcatel.com

Warning

This equipment has been tested and found to comply with the limits for Class B 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 the instructions in this guide, may cause 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. It is suggested that the user use only shielded and grounded cables to ensure compliance with FCC Rules.

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the radio interference regulations of the Canadian department of communications.

Le present appareil numerique níemet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de la Class B prescrites dans le reglement sur le brouillage radioelectrique edicte par le ministere des communications du Canada.

Contents

Introduction

The Alcatel Omnistack® 8008 is a high-performance Gigabit Ethernet switch designed for the network core. It provides 8 1000BASE-SX ports that can significantly improve the performance of your network's backbone, and deliver the throughput needed to support a broad range of advanced network applications.

With 16 Gigabits of aggregate bandwidth, this Alcatel switch provides the quickest solution to meeting the growing demands on your network's limited resources. Each 1000BASE-SX fiber optic port can support connections up to 550 meters (1800 feet), providing high-bandwidth connectivity within or between workgroups, and increased capacity for server farms, giving your users faster access to network-wide resources.

The Alcatel Omnistack® includes a built-in management agent that allows you to configure or monitor the switch using the embedded management program or SNMP/RMON applications. To manage the switch, you can make a direct connection to the console port. You can also make a network connection to manage the switch using Telnet, the on-board Web agent, or any SNMP-based network management software.

By accessing the management agent you can configure the switch's wide array of advanced features, such as:

- Agent supports Telnet, SNMP/RMON and Web-based interface
- Basic RMON (including Statistics, History, Alarms and Events)
- Spanning Tree Algorithm for redundant paths between switches
- Full-duplex flow control (IEEE 802.3x)
- Broadcast storm control (broadcast packets dropped at a configurable threshold)
- Port mirroring (for real-time debugging without affecting the target port)
- VLAN support for up to 256 groups, port-based or with 802.1Q VLAN tagging
- Multicast filtering with IGMP snooping
- Quality of Service supports two levels of priority with Weighted Fair Queueing

Installing the Switch

Before installing the switch verify that you have all the items listed under “Package Contents.” If any of the items are missing or damaged, contact your local Alcatel distributor. Also be sure you have all the necessary tools and cabling before installing the switch. Note that this switch can be installed on any suitably large flat surface or in a standard EIA 19-inch rack. After installing the switch, refer to the Users Guide to set up its more advanced features, such as Spanning Tree Protocol or VLAN port groups.

Package Contents

This package includes:

- Omnistack® 8008 (Model No. OS-8008)
- Four rubber foot pads
- Rack mount bracket kit
- AC power cord
- Console cable
- This Getting Started Guide
- Owner registration card
- Users Guide

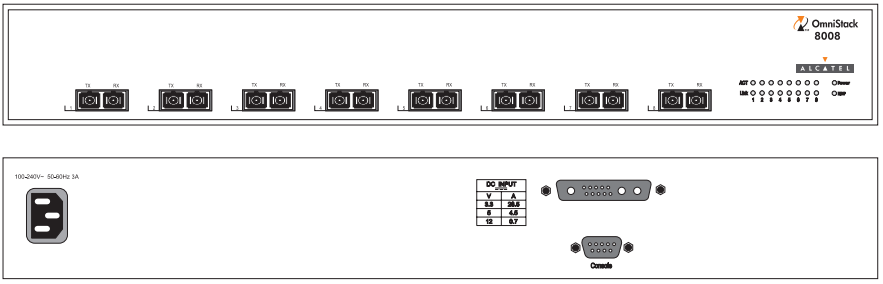
Description of Hardware

The switch contains 8 1000BASE-SX fiber optic ports. An SNMP/RMON management agent is built into the switch unit with a serial port provided on the rear panel for out-of-band console configuration. The AC power socket and redundant power supply connector are also located on the rear panel.

All the SC-type ports operate at 1000 Mbps full and half duplex and support auto-negotiation of duplex mode and flow control. When using auto-negotiation, the transmission mode, and flow control can be automatically set if this feature is also supported by the attached device.

The switch also includes an LED display panel for key system and port indications that simplify installation and network troubleshooting.

The following figure shows the components of this switch:



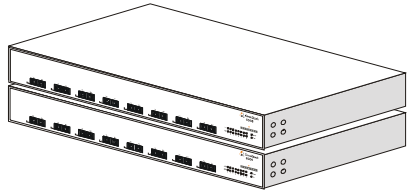
Mounting the Switch

This switch can be placed directly on your desktop, or mounted in a rack.

Before you start installing the switch, make sure you can provide the right operating environment, including power requirements, sufficient physical space, and proximity to other devices that are to be connected. Verify the following requirements:

- Power requirements: 100 to 240 VAC (± 10%) at 50 to 60 Hz (± 3Hz). The switch's power supply automatically adjusts to the input voltage level.
- The switch should be located in a cool dry place, with at least 10 cm (4 in.) of space on the sides for ventilation.
- Place the switch out of direct sunlight, and away from heat sources or areas with a high amount of electromagnetic interference.
- If you intend to mount the switch in a rack, make sure you have all the necessary mounting screws, brackets, bolts and nuts, and the right tools.
- Check if network cables and connectors needed for installation are available.

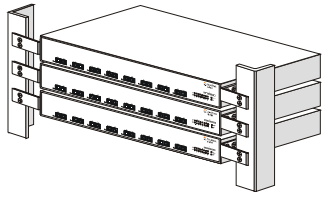
Stacking Switches on a Flat Surface



The Omnistack® 8008 can be stacked anywhere there is enough flat space, such as on a table or desktop.

1. Stick the self-adhesive rubber foot pads (that come with this package) on each of the 4 concave spaces located on the bottom of the switch.
2. Place the first switch on a firm flat surface where you want to install the stack.
3. Repeat step 1 for each switch before stacking them. The rubber foot pads cushion the switch against shock/vibrations and provide space between each switch for ventilation.

Mounting Switches in a Rack



Please comply with the following instructions to ensure that your switch is securely mounted in the rack.

1. Use a standard EIA 19-inch rack.
2. Use the brackets and screws supplied in the rack mounting kit.
3. Use a Philips screwdriver to attach the brackets to the side of the switch.
4. Position the switch in the rack by lining up the holes in the brackets with the appropriate holes on the rack, and then use the rack-mount screws to mount the switch in the rack.

Connecting the Switch System

The OmniStack® 8008 provides 8 SC-type fiber optic ports. Each of these ports support connection to 1000 Mbps Gigabit Ethernet.

Connecting to a Gigabit Port

When connecting fiber cable to a 1000BASE-SX port on the switch, be sure you use an SC-type connector. Follow the steps below.

Warning: This switch uses lasers to transmit signals over fiber optic cable. The lasers are compliant with the requirements of a Class 1 Laser Product and are inherently eye safe in normal operation. However, you should never look directly at a transmit port when it is powered on.

1. Remove and keep the SC port's rubber cover. When not connected to a fiber cable, the rubber cover should be replaced to protect the optics.

2. Check that the fiber terminators are clean. You can clean the cable plugs by wiping them gently with a clean tissue or cotton ball moistened with a little ethanol. Dirty fiber terminators on fiber optic cables will impair the quality of the light transmitted through the cable and lead to degraded performance on the port.

3. Connect one end of the cable to the SC port on the switch and the other end to the SC port on the other device. Since SC connectors are keyed, the cable can be attached in only one orientation. When inserting the cable, be sure the tab on the plug clicks into position to ensure that it is properly seated.

All the SC-type ports operate at 1 Gbps with support for auto-negotiation of duplex mode (full/half) and flow control. Also note the maximum length for 1000BASE-SX fiber optic cable depends on the core size and the rating of the cable, as shown in the following table.

Fiber Size	Fiber Bandwidth	Maximum Cable Length
62.5/125 micron	160 MHz/km	220 m (722 ft)
	200 MHz/km	275 m (902 ft)
50/125 micron	400 MHz/km	500 m (1641 ft)
	500 MHz/km	550 m (1805 ft)

Powering On the Switch

1. Plug the power cord into the power socket on the rear of the switch, and the other end into a power outlet. (If you have purchased a redundant power supply, plug it into the “DC INPUT” receptacle on the rear of the switch.)
2. Check the LED marked Power on the front panel to see if it is on. The unit will automatically select the setting that matches the connected input voltage. Therefore, no additional adjustments are necessary when connecting it to any input voltage within the range marked on the rear panel.
3. The switch performs a self-diagnostic test upon power-on. (Note that this test takes about 10 seconds to complete.)

Note: The unit supports a “hot remove” feature which permits you to connect or disconnect fiber cables without powering off the switch and without disrupting the operation of the devices attached to the switch.

Verifying Port Status

Check each connection by viewing the port indicators shown in the following table.

LED	State	Indication
System		
Power	On	Switch is receiving power.
	Off	Power off or failure.
RDP	On	Redundant power unit is attached and is in backup or active mode.
	Off	Power off or failure.
SC Fiber Ports		
Link	On	Port has established a valid network connection.
	Flashing	Port has been manually disabled, or partitioned by the system due to excessive errors.
	Off	No valid link.
ACT	On	Traffic is passing through the port.
	Off	No network activity.

Verifying System Operation

Verify that all attached devices have a valid connection. The switch monitors the link status for each port. If any device is properly connected to the switch, the Link indicator will light up for the corresponding port. If the Link indicator fails to light when you connect a device to the switch, check the following items:

- Be sure all network cables and connectors are properly attached to the connected device and the switch.
- See if your cable is functioning properly by using it for another port and attached device that displays valid indications when connected to the network.
- Be sure not to exceed the maximum length for the type and rating of fiber cable you are using. Refer to the table on the preceding page.

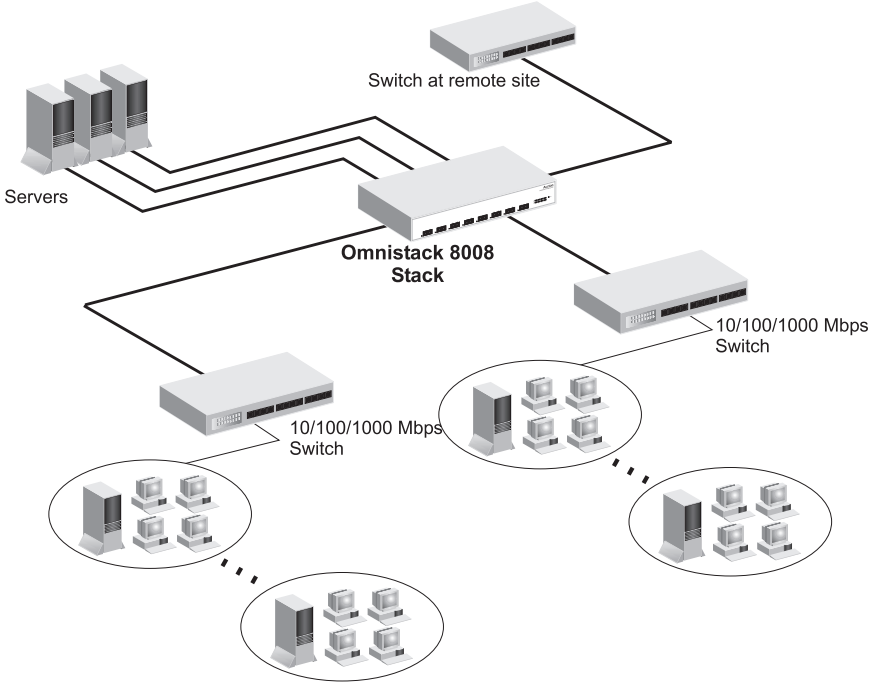
Applications

This switch segments your network, significantly increasing both bandwidth and throughput. Each port on the switch can be attached to any IEEE 802.3z-compliant Gigabit Ethernet device, such as another switch, full-duplex repeater, or a server's network adapter. All switch ports can operate at 1 Gbps full duplex, providing 2 Gbps of bandwidth to the attached device.

Bridging Functions - This switch provides fully transparent bridging functions. It automatically learns each node address and uses the addresses to forward traffic. When traffic passes between devices attached to different ports on the switch, the high-speed switching fabric forwards the packets.

Switching Functions - Store-and-forward switching is used to forward traffic to other ports. This scheme ensures data integrity and provides a clean data stream.

Configuration Options - This switch is designed to operate as a high-bandwidth backbone switch. It segments the core of the network, providing full-duplex switched links to workgroup switches, full-duplex repeaters, or high-speed servers. The switch offers redundant power supply backup and also supports a host of advanced management features that are required for efficient control of today's network traffic.



Product Specifications

Physical Characteristics

Access Method	CSMA/CD
Standards Conformance	IEEE 802.3z 1000BASE-SX
Communication Rate	1000 Mbps
Communication Mode	Full and half duplex
Media Supported	62.5/125 or 50/125 mm multimode fiber
Number of Ports	8 SC-type ports
Indicator Panel	System: Power, RDP Ports: Link, ACT
Dimensions	440 x 285 x 64 mm (17.37 x 11.22 x 2.53 in.)
Weight	4.6 kg (10.14 lbs)
Input Power	100 to 240V (±10%), 50 to 60 Hz (±3 Hz)
Maximum Current	0.5A @110V, 0.7A @240V
Power Consumption	70 Watts max. @ 100-240 VAC
Heat Dissipation	239 BTU/hr max. @ 100-240 VAC
Temperature	Operating: 0~50°C / 32~122°F Storage: -40~70°C / -40~158°F
Humidity	5% to 95% (noncondensing)
Certification	CE Mark
Emissions	FCC Class B, VCCI Class B, CISPR Class B
Immunity	EN 61000-4-2/3/4/6/11
Safety	CSA/NRTL, TÜV/GS

Switching Criteria

Network Bridging Function	Filtering, forwarding and learning
Switching Method	Store-and-forward
Address Table	12K entries total
Queue Buffer	2M bytes per port
Address Resolution	Fast hashing scheme

Traffic Control

Flow Control	IEEE 802.3x for full duplex, back-pressure for half duplex
Broadcast Suppression	Broadcast traffic discarded above configurable threshold

System Management

System Configuration	On-board configuration via console connection to serial port or via Telnet; Web-based management via HTTP protocol to access embedded management program; Full-featured SNMP/RMON management using network management software
Management Agent	MIB support: MIB II (RFC1213), Bridge MIB (RFC 1493), Ethernet-like MIB (RFC1643), RMON MIB (RFC1757), and Alcatel's private MIB
RMON	Groups 1,2,3,9 (Statistics, History, Alarm, Event)

Troubleshooting

Diagnosing Switch Indicators

The switch can be easily monitored through panel indicators to assist the network manager in identifying problems. This section describes common problems you may encounter and possible solutions.

Symptom: Link indicator does not light up after making a connection.

Cause: Network interface (e.g., a network adapter card on the attached device), network cable, or switch port may be defective.

Solution: Verify that the switch and attached device are powered on. Be sure the cable is plugged into both the switch and corresponding device. Verify that the proper cable type is used and its length does not exceed specified limits. Check the adapter on the attached device and cable connections for possible defects. Replace the defective adapter or cable if necessary.

Symptom: Power indicator does not light up after power on.

Cause: Defective power outlet, power cord, or internal power supply.

Solution: Check the power outlet by plugging in another device that is functioning properly. Check the power cord with another device. If these measures fail to resolve the problem, contact Alcatel Technical Support.

Power and Cooling Problems

If the power indicator does not turn on when the power cord is plugged in, you may have a problem with the power outlet, power cord, or internal power supply as explained in the previous section. However, if the unit powers off after running for a while, check for loose power connections, power losses or surges at the power outlet, and verify that the fans on the side of the unit are unobstructed and running prior to shutdown. If you still cannot isolate the problem, then the internal power supply may be defective. In this case, contact your Alcatel distributor for assistance.

Installation

Verify that all system components have been properly installed. If one or more components appear to be malfunctioning (e.g., the power cord or network cabling), test them in an alternate environment where you are sure that all the other components are functioning properly.

EMI Certification

FCC Class B Certification (USA)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Warning! This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the distance between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from the one which the receiver is connected to.
- Consult the dealer or an experienced radio/TV technician for help.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

Note: In order to maintain compliance with the limits of a Class B digital device, Alcatel requires that you use a quality interface cable when connecting to this device. Changes or modifications not expressly approved by Alcatel could void the user's authority to operate this equipment. Suggested cable type is 62.5/125 or 50/125 µm multimode fiber cable for SC port connections.

Canada Department of Communications - Class B

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of the Department of Communications.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel brouilleur: "Appareils Numériques," NMB-003 édictée par le ministère des Communications.

BSMI Class A (Taiwan)

警告使用者：這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

VCCI Class B Compliance (Japan)

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＢ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると受信障害を引き起こすことがあります。
取り扱い説明書に従って正しい取り扱いをして下さい。

CE Mark Declaration of Conformance

This is to certify that this product complies with ISO/IEC Guide 22 and EN45014. It conforms to the following specifications:

EMC:EN55022(1988)/CISPR-22(1985) Class B

EN 61000-4-2(1996)	4 kVCD, 8 kVAD
EN 61000-4-3(1996)	3 V/m
EN 61000-4-4(1996)	1 kV- (power line)
EN 61000-4-5(1995)	Surge C.M. 1 kV, D.M. 2 kV
EN 61000-4-6(1996)	3 Vrms
EN 61000-4-11(1994)	Voltage drop

This product complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC, and carries the CE Mark accordingly.

Safety Compliance

Warning: Fiber Optic Port Safety

When using a fiber optic port, never look at the transmit laser while it is powered on. Also, never look directly at the fiber TX port and fiber cable ends when they are powered on.

Avertissment: Ports pour fibres optiques - sécurité sur le plan optique

Ne regardez jamais le laser tant qu'il est sous tension. Ne regardez jamais directement le port TX (Transmission) à fibres optiques et les embouts de câbles à fibres optiques tant qu'ils sont sous tension.

Warnhinweis: Faseroptikanschlüsse - Optische Sicherheit

Niemals ein Übertragungslaser betrachten, während dieses eingeschaltet ist. Niemals direkt auf den Faser-TX-Anschluß und auf die Faserkabelenden schauen, während diese eingeschaltet sind.

Underwriters Laboratories Compliance Statement

Important! Before making connections, make sure you have the correct cord set. Check it (read the label on the cable) against the following:

Operating Voltage	Cord Set Specifications
120 Volts	UL Listed/CSA Certified Cord Set
	Minimum 18 AWG
	Type SVT or SJT three conductor cord
	Maximum length of 15 feet
	Parallel blade, grounding type attachment plug rated 15A, 125V
240 Volts (Europe only)	Cord Set with H05VV-F cord having three conductors with minimum diameter of 0.75 mm^2
	IEC-320 receptacle
	Male plug rated 10A, 250V

The unit automatically matches the connected input voltage. Therefore, no additional adjustments are necessary when connecting it to any input voltage within the range marked on the rear panel.

Wichtige Sicherheitshinweise (Germany)

1. Bitte lesen Sie diese Hinweise sorgfältig durch.
2. Heben Sie diese Anleitung für den späteren Gebrauch auf.
3. Vor jedem Reinigen ist das Gerät vom Stromnetz zu trennen. Verwenden Sie keine Flüssigoder Aerosolreiniger. Am besten eignet sich ein angefeuchtetes Tuch zur Reinigung.
4. Die Netzanschlu ßsteckdose soll nahe dem Gerät angebracht und leicht zugänglich sein.
5. Das Gerät ist vor Feuchtigkeit zu schützen.
6. Bei der Aufstellung des Gerätes ist auf sicheren Stand zu achten. Ein Kippen oder Fallen könnte Beschädigungen hervorrufen.
7. Die Belüftungsöffnungen dienen der Luftzirkulation, die das Gerät vor Überhitzung schützt. Sorgen Sie dafür, daß diese Öffnungen nicht abgedeckt werden.
8. Beachten Sie beim Anschluß an das Stromnetz die Anschlußwerte.
9. Verlegen Sie die Netzanschlußleitung so, daß niemand darüber fallen kann. Es sollte auch nichts auf der Leitung abgestellt werden.
10. Alle Hinweise und Warnungen, die sich am Gerät befinden, sind zu beachten.
11. Wird das Gerät über einen längeren Zeitraum nicht benutzt, sollten Sie es vom Stromnetz trennen. Somit wird im Falle einer Überspannung eine Beschädigung vermieden.
12. Durch die Lüftungsöffnungen dürfen niemals Gegenstände oder Flüssigkeiten in das Gerät gelangen. Dies könnte einen Brand bzw. elektrischen Schlag auslösen.
13. Öffnen sie niemals das Gerät. Das Gerät darf aus Gründen der elektrischen Sicherheit nur von authorisiertem Servicepersonal geöffnet werden.
14. Wenn folgende Situationen auftreten ist das Gerät vom Stromnetz zu trennen und von einer qualifizierten Servicestelle zu überprüfen:
    a.Netzkabel oder Netzstecker sind beschädigt.
    b.Flüssigkeit ist in das Gerät eingedrungen.
    c.Das Gerät war Feuchtigkeit ausgesetzt.
    d.Wenn das Gerät nicht der Bedienungsanleitung entsprechend funktioniert oder Sie mit Hilfe dieser Anleitung keine Verbesserung erzielen.
    e.Das Gerät ist gefallen und/oder das Gehäuse ist beschädigt.
    f. Wenn das Gerät deutliche Anzeichen eines Defektes aufweist.
15. Zum Netzanschluß dieses Gerätes ist eine geprüfte Leitung zu verwenden. Für einen Nennstrom bis 6A und einem Gerätegewicht größer 3kg ist eine Leitung nicht leichter als H05VV-F, 3G, 0.75mm^2 einzusetzen.

Der arbeitsplatzbezogene Schalldruckpegel nach DIN 45 635 Teil 1000 beträgt 70dB(A) oder weniger.

Optional Hardware

RPU150W: Redundant Power Supply

www.alcatel.com/enterprise

Alcatel

26801 West Agoura Road
Calabasas, CA 91301 USA

Contact Center

(800) 995-2612 US/Canada
(818) 880-3500 Outside US

www.alcatel.com/enterprise

P/N 060118-10, Rev. A 12/00

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E122000-R01