



PacketStar[™]
PSAX 2300 Access Concentrator
Installation and Operation Guide
A PacketStar[™] PSAX Central Office Product

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Warranty Information

Software and Hardware Limited Warranties

Lucent Technologies provides a 90-day limited software warranty, and a one-year limited hardware warranty on this product. Refer to the *Software License and Limited Warranty Agreement* and the *Lucent Technologies InterNetworking Systems Global Warranty* that accompanied your package for more information.

Every effort has been made to ensure that this document is complete and accurate at the time of release, but information is subject to change. Lucent Technologies assumes no responsibility or liability for errors or inaccuracies that may appear in this guide.

Warranty Warnings

▲ CAUTION:

Do not make electrical or mechanical modifications to any of the components in the PSAX system. Lucent Technologies is not responsible for the safety or the performance of a modified Lucent product. Do not attempt to repair any failed Power Supply module, Stratum 3–4 module, CPU module, I/O, or Server module.

▲ CAUTION:

Do not make electrical or mechanical modifications to any of the components in the PSAX system. Lucent Technologies is not responsible for the safety or the performance of a modified Lucent product. Do not attempt to repair any failed removable I/O or server modules.

▲ CAUTION:

Modifying or tampering with PSAX chassis components may void your warranty. Any modification to this equipment not expressly authorized by Lucent Technologies may void your granted authority to operate such equipment.

▲ CAUTION:

Air vents in the PSAX chassis are provided to aid in ventilation and to protect from overheating. These vents must be regularly inspected by the user and cleared of dust and blockage. Equipment failure associated with improper maintenance or suspected failure to adhere to proper ventilation procedures as described above will void your warranty.

▲ CAUTION:

You must replace an air filter having an accumulation of dust to ensure adequate airflow through the PSAX chassis. Reduced airflow could result in damaging heat buildup within the chassis.

- Periodically inspect the air filter for accumulated dust and replace the filter as needed. At a minimum, monthly inspection is recommended. Equipment failure due to inadequate airflow voids your equipment warranty.
- Use only filters supplied by Lucent Technologies in your PSAX chassis. Use of other filters voids your equipment warranty.

▲ CAUTION:

You must maintain a minimum 10.16 cm (4 in) of clearance around the chassis for adequate airflow. Failure to adhere to this space requirement may result in equipment failure due to overheating. Failure to provide a minimum of 10.16 cm (4 in) of clearance between this unit and any other device/structure will void your warranty.

▲ **CAUTION:**

If your system or location loses power or your current session ends abnormally while you are in the process of configuring the system, and you have not yet saved the values permanently, you will lose all unsaved values you have applied on the various windows.

▲ **CAUTION:**

Shipping the chassis with removable modules installed may cause damage to the chassis and the modules. Damage to any of the components in the system resulting from shipping the chassis with removable modules installed could void your warranty. Only Lucent-authorized personnel should ship the PSAX 2300 chassis with a module installed.

Regulatory Standards Compliance

The PSAX 2300 Access Concentrator is fully compliant with the following environmental, safety, and emissions standards. Appropriate statements appear in the next subsection.

Safety Requirements

- Underwriter's Laboratory (UL) — Safety and Factory Compliance UL 1950
- CB-Scheme — IEC 60950:1991+A1:1992+A2:1993+A3:1995+A4:1996

Electromagnetic Compatibility (EMC) and Physical Requirements

- Federal Communications Commission (FCC) — EMC compliance (Part 15 Class A)
- Network Equipment Building System (NEBS) GR-63-CORE and GR-1089-CORE, Level 3 requirements
- EN 55022:1994 Class A (CISPR22:1993)
- EN 300 386-2 Class A
- VCCI Class A

CE Marking

CE marking of the Lucent Technologies PSAX 2300 ATM Access Concentrator consisting of the following model numbers:

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23S00, 23P02, 20P20, 20P21, 20P22, 20P23, 20A12, 20A13, 20N07, 20N20, 20N22, 20N27, 20N28, 20N29, 20N34, 20N40, 20N41, 20N56, 20N62, 20N63, 20N64, 20N65, 20N92, 20N93, 23N05, 23N11, 23N27, 23N66

is based upon conformity with the following standard(s) or other normative document(s):

- EN 300 386-2:1997
- EN 55022:1994 Class A
- EN 60950:1992+A1:1993+A2:1993+A3:1995+A4:1997+A11:1997
- CTR 4/A1 as specified in Commission Decision 98/520/EC
- CTR 12/A1 as specified in Commission Decision 97/520/EC
- CTR 13 as specified in Commission Decision 97/521/EC
- CTR 24 as specified in Commission Decision 97/639/EC

in accordance with the provisions of the following Council directives:

- Electromagnetic Compatibility (EMC) 89/336/EEC
- Low Voltage 73/23/EEC
- Telecommunications Terminal Equipment and Satellite Earth Station Directive 98/13/EC

The European Community Declarations of Conformity for the PSAX 2300 Access Concentrator are included in the EC Declarations of Conformity Appendix in the back of this guide.

CE 168 X

Regulatory Statements

United States Federal Communications Commission (FCC) Statements

Part 15. This equipment has been tested and found to comply with the limits for a 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 guide, may cause harmful interference to radio communications. Operation of this equipment in a

residential area is likely to cause harmful interference; in this case, you would be required to correct the interference at your own expense.

All cables used to connect to peripherals must be shielded and grounded. Operation with cables, connected to peripherals, that are not shielded and grounded may result in interference to radio and television reception.

The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Part 68. This equipment complies with Part 68 of the FCC rules. On the back of the PSAX 2300 chassis is a label that contains the FCC registration number, in addition to other information. You must provide this information to the telephone company, if they request it. The FCC requires Lucent Technologies, Inc., to provide you with the following information:

1. The PSAX 2300 system has digital service interface capabilities using RJ-48C and RJ-48H connectors. The facility interface codes with which the PSAX 2300 system complies for digital services are as follows: 04DU9-BN, 04DU9-DN, 04DU9-1KN, and 04DU9-1SN. The PSAX 2300 system has loop start interface capabilities using an RJ-11C connector. The facility interface code with which the PSAX 2300 system complies for service is 02LS2. The service order codes for the PSAX 2300 system are 6.0F for the T-1 interface and 9.0Y for the loop start interface.
2. An FCC-compliant telephone network interface jack is built into this equipment and is compatible with interconnections that are Part 68 compliant.
3. The REN for the Voice 2-Wire Office module when used in the PSAX 2300 system is 0.7B.
4. If the PSAX 2300 system causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service might be required. But if advance notice is not practical, the telephone company will notify you as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe this is necessary.
5. The telephone company might make changes in its facilities, equipment, operations, or procedures that could affect the operation of this equipment. If this happens, the telephone company will provide advance notice for you to make necessary modifications to maintain uninterrupted service.
6. If you experience trouble with the PSAX 2300 system, or need repairs or warranty information, please refer to the Limited Hardware Warranty card that accompanied your PSAX 2300 product shipment for instructions on obtaining technical support in your area.

If the PSAX 2300 system is causing harm to the telephone network, the telephone company might request that you disconnect the equipment until the problem is resolved.

7. This equipment has no user-serviceable parts.

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This equipment cannot be used on public coin telephone service provided by the telephone company. Connection to party line service is subject to state tariffs. Contact your state public utility commission, public service commission, or corporation commission for information.

Canadian Regulatory Statements

Industry Canada Information

Ringer Equivalence Number (REN) Notice. The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. The Department does not guarantee that the equipment will operate to the user's satisfaction.

Before installing this equipment, the user should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed by using an acceptable method of connection. In some cases, the company's inside wiring associated with a single-line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above condition may not prevent degradation of service in some situations.

Repairs to some certified equipment should be made by an authorized maintenance facility designated by the supplier. Any repairs or alternations made by the user to this equipment or equipment malfunctions might give the telecommunications company cause to request the user to disconnect the equipment.

For their own protection, users should ensure that the ground connections of the power utility, telephone lines, and internal metallic water pipe system are connected together. This precaution may be particularly important in rural areas.

CAUTION:

Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority or electrician.

The Ringer Equivalence Number (REN) assigned to the Voice 2-Wire Office module denotes the percentage of the total load to be connected to a telephone loop, which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the total of the REN of all devices does not exceed 5.

The REN for the Voice 2-Wire Office module when used in the PSAX 2300 system is 0.7B.

Renseignements Industrie Canada

Avis de nombre équivalent de sonneries (REN). Le label Industrie Canada permet de reconnaître les équipements homologués. Cette

homologation indique que l'équipement satisfait certaines règles de protection, d'exploitation et de sécurité des réseaux de télécommunications. Le ministère de l'Industrie ne garantit pas que l'équipement fonctionnera à la satisfaction de l'utilisateur.

Avant d'installer cet équipement, l'utilisateur doit s'assurer qu'il est permis de le connecter aux installations de la compagnie de télécommunications locale. L'équipement doit également être connecté suivant une méthode convenable. Dans certains cas, il sera nécessaire de prolonger le câblage intérieur de la ligne d'abonné de la compagnie au moyen d'un connecteur homologué (rallonge de téléphone). L'abonné doit savoir que, dans certaines situations, la conformité aux dispositions ci-dessus ne prévient pas nécessairement la dégradation du service.

La réparation de certains équipements homologués doit être assurée par un atelier agréé désigné par le fournisseur. Toute réparation ou altération effectuée par l'utilisateur ou tout mauvais fonctionnement de cet équipement peut donner à la compagnie de téléphone des raisons de demander audit utilisateur de déconnecter celui-ci.

Pour leur propre sécurité, les utilisateurs doivent veiller à ce que les mises à la terre de l'alimentation secteur, des lignes téléphoniques et du système intérieur de conduites d'eau métalliques soient raccordés ensemble. Cette précaution peut s'avérer particulièrement importante dans les zones rurales.

▲ CAUTION:

Les utilisateurs ne doivent pas tenter d'effectuer eux-mêmes ces raccordements, mais doivent prendre contact avec un électricien ou organisme de vérification compétent.

Le nombre équivalent de sonnerie (REN) attribué au module central bifilaire (Voice 2-Wire Office) correspond au pourcentage de la charge totale à connecter à un circuit téléphonique bifilaire; il est utilisé par l'appareil pour prévenir la surcharge. Le circuit peut être terminé par n'importe quelle combinaison d'appareils, à la seule condition que le total des REN de ces derniers ne dépasse pas cinq.

International Regulatory Statements

CISPR22. This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

Australian/New Zealand Regulatory Statements

AS/NZS-3548 Warning. This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

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Japanese Regulatory Statement

Voluntary Control Council (VCCI) Class A Regulatory Statement. This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may occur, in which case, the user may be required to take corrective actions.

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A情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

Safety Information



When installing and operating the PSAX 2300 Access Concentrator, follow the safety guidelines provided below to help prevent serious injury and/or damage to the PSAX 2300 equipment. Please read all warnings and instructions supplied before beginning installation or configuration of the PSAX 2300 equipment. In addition to the general safety information provided below, you should also refer to the text in the user and installation guides for other important safety information and procedures.

⚠ DANGER:

Never push and/or place an object in or through any vent in the PSAX 2300 chassis. Doing so may result in personal injury, equipment damage, or both. Touching exposed electrical components may cause injury.

⚠ DANGER:

Install only equipment identified in the installation guide for the PSAX 2300 system. Using other equipment may result in improper connection of circuitry, which may lead to equipment fire, personal injury, or equipment damage.

⚠ DANGER:

Do not install or use the PSAX 2300 unit in wet locations. In the event the unit becomes wet, turn it off, disconnect it from the facility power source, and allow the unit to dry thoroughly. If, after this procedure, you encounter problems with the performance of the unit, please contact your NetworkCare Service Center. (See the *Lucent Technologies InterNetworking Systems Global Warranty* that accompanied your shipment for the appropriate telephone number.)

⚠ DANGER:

Ensure that the voltage and frequency of the facility power source match the requirements of the PSAX 2300 Power Supply unit. The PSAX 2300 system should only be operated from the power source type indicated on the marking label. Failure to meet this requirement may cause personal injury, fire, and/or damage to the unit.

⚠ DANGER:

The OC-3c Single Mode (SM) and the STM-1 Single Mode (SM) modules contain a laser-generating device, which emits a laser light beam from the transmit port. This port is labeled TX on the module faceplate. When the module is inserted into an operational PSAX 2300 chassis, personal injury may result from looking into, or near, either port. Personal injury may also result from looking into, or near, the far end of a connected fiber optic cable. For additional laser safety information, see Appendix B

of the *OC-3c Multi-Mode and Single-Mode Module Guide*, the *OC-3c Multi-Mode and Single-Mode 1+1 APS Module Guide*, the *STM-1 Multi-Mode and Single-Mode Module Guide*, and the *STM-1 Multi-Mode and Single-Mode 1+1 MSP Module Guide*.

⚠ DANGER:

Interface lines connected to the Voice 2-Wire Office module (model number 20N32) that exit the building premises must be connected to any nationally recognized testing laboratory (NRTL) listed telecommunications protection device that provides primary and secondary protection. These protection devices provide overvoltage protection to the Voice 2-Wire Office module interface lines.

⚠ DANGER:

Direct current (DC) power supplies must be installed only in restricted areas (dedicated equipment rooms, equipment closets, or the like), in accordance with Articles 110-16, 110-17, and 110-18 of the National Electric Code, ANSI/NFPA 70. Connect to a -48 V dc source that is electrically isolated from the alternating-current (AC) source and reliably grounded to the earth.

This equipment is designed to permit the connection of the grounded conductor of the direct-current supply circuit to the grounding conductor on the equipment. If this connection is made, all of the following conditions must be met:

- This equipment shall be connected directly to the direct-current supply system grounding electrode conductor, the bonding jumper from a grounding terminal bar, or a bus to which the direct-current supply system grounding electrode conductor is connected.
- This equipment shall be located in the same immediate area (such as adjacent cabinets) as any other equipment that has a connection between the grounded conductor of the same direct-current supply circuit and the grounding conductor, and also has the point of grounding of the direct-current system. The direct-current system shall not be grounded elsewhere.
- The direct-current supply source must be located within the same premises as the equipment.
- There shall be no switching or disconnecting devices in the grounded circuit conductor between the direct-current source and the point of connection of the grounding electrode conductor.

⚠ DANGER:

A readily accessible disconnect device must be provided in the fixed wiring for a direct-current Power Supply. It must be suitable for the rated voltage and current specified in the PSAX 2300 installation guide.

⚠ DANGER:

When installing the unit, the ground connection must always be initiated first and disconnected last.

⚠ DANGER:

Read all installation instructions before connecting the system to a power source.

⚠ DANGER:

This equipment is to be properly grounded prior to operation. Ensure the PSAX 2300 chassis is properly grounded during normal use.

⚠ DANGER:

Wire the direct-current power supply using the appropriate lugs at the wiring end, as shown in the illustration of the direct-current Power Supply terminal block in the installation guide for the PSAX 2300 system. The proper wiring sequence is ground to ground, positive to positive (line to L), and negative to negative (neutral to N). Before servicing direct-current supply voltages, ensure the power is removed from the direct-current circuit. To ensure all power is OFF, locate the circuit breaker on the panel board that services the direct-current circuit, switch the circuit breaker to the OFF position, and tape the switch handle to the circuit breaker in the OFF position. After wiring the direct-current Power Supply, remove the tape from the circuit breaker switch handle and reinstate power by moving the handle of the circuit breaker to the ON position.

⚠ DANGER:

Do not work on the system, connect, or disconnect cables during periods of possible lightning activity.

⚠ DANGER:

Do not perform any action that could create a possible hazard to others or make the working environment and/or the equipment unsafe.

⚠ DANGER:

Locate the emergency power-OFF switch for the location in which work is being performed so, in the event an electrical accident occurs, power can be turned off quickly.

▲ WARNING:

When using the PSAX product with a PBX and/or Key Telephone System, our system and your equipment must use a common chassis ground connection to avoid ground current loops.

▲ WARNING:

Be sure to cover all empty slots with blank faceplates to protect your equipment.

▲ WARNING:

When stranded wiring is required, use approved wiring terminations, such as closed-loop or spade-type with upturned lugs. These terminations should be the appropriate size for the wires and should clamp both the insulation and conductor.

Safety Information

▲ WARNING:

Once the PSAX 2300 chassis is operational (power is applied to the chassis) and the OC-3c SM or STM-1 SM module is fully inserted into the chassis backplane, use extreme caution during removal of the fiber optic cable from one or both ports. Keep the protective port caps supplied with these two types of modules nearby (for example, taped to the cable for the port), and place said cap on the port immediately after removing the cable from an operational module.

▲ WARNING:

If you place the PSAX 2300 chassis on or near the floor, dust or debris may accumulate faster inside the chassis than it would if placed on a table or standing structure. Therefore, if this unit is placed on or near the floor, accelerated routine vent and air filter inspection is necessary to avoid the risk of unit failure and/or injury to property or persons.

▲ WARNING:

Be sure to use the ejector handles during installation and removal of I/O and server modules.

▲ WARNING:

When inserting modules into the chassis, slide them gently, not forcefully. Excessive force may cause the modules to be seated improperly in the chassis, and result in possible damage to the module or the chassis.

▲ WARNING:

Electrostatic discharge (ESD) can damage module and chassis components. All personnel should be grounded and follow proper ESD procedures before installing, removing, or handling PSAX 2300 components.

▲ WARNING:

The AC power cord is rated at 125 V ac. If you will be using this unit in an application above 125 V ac, you must source an appropriate Agency-approved cordset.

▲ WARNING:

You must maintain the minimum 10.16 cm (4 in) of clearance on both sides of the chassis for adequate airflow, or the equipment might fail due to overheating. If you place the unit on or near the floor, dust will accumulate faster inside the chassis.

▲ WARNING:

Interface lines connected to the Voice 2-Wire Station module must be connected only to telephone sets. Do not connect these station port interface lines to Public Switched Telephone Network (PSTN) type interfaces.

▲ CAUTION:

If your system or location loses power or your current session ends abnormally while you are in the process of configuring the system, and you have not yet saved the values permanently, you will lose all unsaved values you have applied on the various windows.

▲ CAUTION:

Ultimate disposal of this product should be handled according to all laws and regulations in your specific geographic region.

▲ CAUTION:

Install or remove modules one at a time. Doing this aids in preventing the PSAX 2300 system from indicating any erroneous failure messages, and allows the PSAX 2300 system to reinitialize and display the accurate configuration of the module that is inserted.

▲ CAUTION:

When using a DSP2A, DSP2B or DSP2C Voice Server module and an Enhanced DS1/E1 module with a PBX and/or Key Telephone System, the PSAX 2300 system and your equipment must use a common chassis ground connection to avoid ground current loops, which could affect voice quality.

Safety Information

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Installation Checklist



This section provides an overview of the tasks you must complete to install the PSAX 2300 system. Use the following installation checklist to help you install your equipment. Details on system installation follow this checklist.

Note: Be sure to take notes on your installation process, results, and any problems associated with your installation of the PSAX 2300 system. Additional space is provided at the end of this checklist for notes.

Procedure	Your Notes/ Comments
Before You Start Installation:	
1. Read all installation instructions before proceeding. Be sure you understand and follow the safety precautions provided in "Safety Information" on page xi.	<input type="checkbox"/>
2. Ensure that you have a master network design plan to use for connecting cabling between the PSAX 2300 system and your other network equipment.	<input type="checkbox"/>
3. Select a location that: ~ Accommodates the weight and size of the PSAX 2300 system ~ Offers adequate ventilation and a controlled climate	<input type="checkbox"/>
4. Verify that the input power from your facility power source meets the specifications in Table 13 on page 20.	<input type="checkbox"/>
5. Ensure that a fuse panel is already installed in the rack cabinet or telco frame, according the procedures implemented for your facility	<input type="checkbox"/>
6. Determine whether the rack or cabinet in which you are installing the PSAX 2300 system is connected to a common ground.	<input type="checkbox"/>

Installation Checklist

Procedure	Your Notes/ Comments
7. Verify that your equipment shipment is complete: <ul style="list-style-type: none"> ~ Remove all equipment from the packaging materials. <p>Note: Do not take the individual modules out of their electrostatic discharge (ESD)-protective bags until you are actually ready to install them in the chassis.</p> <ul style="list-style-type: none"> ~ Ensure that you have all the correct equipment that was ordered for your system configuration ~ Check to see that you have the Product Information Library CD-ROM. ~ Open the installation kit. 	<input type="checkbox"/>
8. Ensure that you have the appropriate tools needed for installation.	<input type="checkbox"/>
Installing the Hardware into the Cabinet or Rack:	
1. Attach the mounting angle brackets to the PSAX 2300 chassis.	<input type="checkbox"/>
2. Install the chassis into the telco rack.	<input type="checkbox"/>
3. Connect the ground wire for the PSAX 2300 chassis.	<input type="checkbox"/>
4. Connect the facility power wires from the fuse panel to the chassis.	<input type="checkbox"/>
5. Insert the Power Supply, Stratum 3–4, and CPU modules into the chassis.	<input type="checkbox"/>
6. Insert the I/O modules into the chassis.	<input type="checkbox"/>
7. Connect your network cabling to the unit.	<input type="checkbox"/>
Starting Up the PSAX 2300 System:	
1. Turn on the power to the chassis at the fuse panel.	<input type="checkbox"/>
2. Verify that the LED indicators on the PSAX 2300 equipment and the I/O modules are showing that all components are functioning properly.	<input type="checkbox"/>
3. Connect the PSAX 2300 system to the computer or network you will use for system configuration and management.	<input type="checkbox"/>
4. Ensure that the connection between the PSAX 2300 system and the computer is operational.	<input type="checkbox"/>

Additional Notes

Use this page for additional notes about the process, results, and any problems associated with your installation of the PSAX 2300 system.

Installation Checklist

About This Guide



Purpose of This Guide

The *PSAX 2300 Access Concentrator Installation and Operation Guide* provides information about the following:

- Observing appropriate safety, electrostatic discharge (ESD), and ventilation precautions in setting up and operating the PSAX 2300 Access Concentrator (PSAX 2300) system
- Setting up your hardware components in preparation for installation
- Installing your PSAX 2300 chassis and related hardware
- Installing user-selected input/output (I/O) and server modules into the PSAX 2300 chassis
- Starting up the PSAX 2300 system
- Running system checkout tests on the PSAX 2300 system
- Shutting down the PSAX 2300 system
- Removing modules from the installed PSAX 2300 system

Note: If you are installing a new, unconfigured system for the first time, you should read through this guide before beginning the installation process.

Audience for This Guide

The information in this guide is intended for people who will install the PSAX 2300 system hardware.

Before you use this document or operate the PSAX 2300 chassis you should already understand and have experience with the following:

- Electrical safety and electrical installation techniques and procedures
- General installation of communications hardware

Only authorized personnel should use the Access Concentrator system.

Related Reading

Lucent Technologies Information Products

Product Information Library To install and use your PSAX 2300, you will need to read the following publications, which are provided on your Lucent Technologies PSAX 2300 Product Information Library CD-ROM.

Table 1. PacketStar™ Release 6.3.0 Product Information Library (Adobe Acrobat Reader Files)

Menu Option	Document
PSAX 2300 Access Concentrator	
	<i>PSAX 2300 Installation and Operation Guide</i>
	<i>PSAX 2300 User Guide</i>
Release Notes and Bulletins	
	<i>Access Concentrator Family Release Notes R630 PDF, Issue 1</i>
	<i>New Features Bulletin for Release 6.3</i>
	<i>Safety Warnings Shipping Sheet, Issue 4</i>
Connection Gateway API Documents	
	<i>PacketStar Connection Gateway API Developers Guide</i>
Application Notes	
	<i>PacketStar ATM Access Concentrators and DEFINITY ECS Application Note, R620</i>
	<i>Connecting a CBX or GX Switch to a PSAX Access Concentrator Via an ATM Port: Application Note, Issue 1</i>
	<i>PacketStar Access Concentrator Trunk Conditioning Application Note, Issue 1</i>
Declarations of Conformity	
	<i>PSAX 2300 -48 VDC Power Supply, Declaration of Conformity, EMC</i>
	<i>PSAX 2300 -48 VDC Power Supply, Declaration of Conformity, Low Voltage</i>
	<i>PSAX 2300 ATM Access Concentrator, Declaration of Conformity, EMC</i>
	<i>PSAX 2300 ATM Access Concentrator, Declaration of Conformity, Low Voltage</i>
	<i>PSAX 2300 Stratum 3-4 Module, Declaration of Conformity, EMC</i>
	<i>PSAX 2300/PSAX 1250 CPU Module, Declaration of Conformity, EMC</i>

Printed Documents

For your convenience, the following documents from your Product Information Library CD-ROM are also available in printed form. For ordering information, contact your Lucent Technologies distributor or account representative.

Table 2. PacketStar™ Release 6.3.0 Product Information Library (Printed Documents)

Document	Issue	COMCODE	Document Number
<i>PSAX 2300 Installation and Operation Guide, Release 6.3</i>	Issue 1	300303294	255-700-051
<i>PSAX 2300 User Guide, Release 6.3</i>	Issue 1	300303310	255-700-050
<i>PacketStar™ Family of Access Concentrators, Release Note, System Software Release 6.3.0</i>	Issue 1	N/A	N/A
<i>PacketStar™ Connection Gateway API Developer's Guide, Release 6.3.0</i>	Issue 1	300314515	255-700-100
<i>Using the PacketStar™ PSAX Access Concentrator Caller ID Feature Application Note</i>	Issue 1	300284338	255-700-006
<i>PacketStar™ ATM Access Concentrators and DEFINITY ECS Application Note</i>	Issue 1	300306065	255-700-122
<i>PacketStar™ ATM Access Concentrators Trunk Conditioning Application Note</i>	Issue 1	300287018	255-700-072
<i>Connecting a CBX or GC Switch to a PacketStar™ PSAX Access Concentrator Via an ATM Port Application Note</i>	Issue 1	300287059	255-700-012

Table 3. PacketStar™ Modules Product Information Library (Printed Documents)

Document	Issue	COMCODE	Document Number
<i>Alarm Module User Guide, Release 6.3</i>	Issue 1	300303062	255-700-027
<i>Channelized DS3 Module User Guide, Release 6.3</i>	Issue 1	300303070	255-700-028
<i>Channelized STS-1e T1 Module User Guide, Release 6.3</i>	Issue 1	300303088	255-700-029
<i>DS1 IMA Module User Guide, Release 6.3</i>	Issue 1	300303096	255-700-032

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Audience for This Guide

Table 3. PacketStar™ Modules Product Information Library (Printed Documents)

Document	Issue	COMCODE	Document Number
<i>DS3 ATM Module User Guide, Release 6.3</i>	Issue 1	300303104	255-700-033
<i>DS3 Frame Relay Module User Guide, Release 6.3</i>	Issue 1	300303112	255-700-034
<i>DSP2A, DSP2B and DSP2C Voice Server Modules User Guide, Release 6.3</i>	Issue 1	300303120	255-700-035
<i>E1 IMA Module User Guide, Release 6.3</i>	Issue 1	300303138	255-700-036
<i>E3 ATM Module User Guide, Release 6.3</i>	Issue 1	300303146	255-700-037
<i>Enhanced DS1 Module User Guide, Release 6.3</i>	Issue 1	300303161	255-700-038
<i>Enhanced E1 Module User Guide, Release 6.3</i>	Issue 1	300303161	255-700-039
<i>Ethernet Module User Guide, Release 6.3</i>	Issue 1	300303179	255-700-040
<i>High-Density E1 Module User Guide, Release 6.3</i>	Issue 1	300303187	255-700-073
<i>High-Speed Module User Guide, Release 6.3</i>	Issue 1	300303195	255-700-041
<i>Medium-Density DS1 Module User Guide, Release 6.3</i>	Issue 1	300298676	255-700-120
<i>Multi-Serial Module User Guide, Release 6.3</i>	Issue 1	300303203	255-700-042
<i>OC-3c Multi-Mode and Single-Mode 1+1 APS Modules User Guide, Release 6.3</i>	Issue 1	300303211	255-700-043
<i>OC-3c Multi-Mode and Single-Mode Modules User Guide, Release 6.3</i>	Issue 1	300303229	255-700-044
<i>Route Server Module User Guide, Release 6.3</i>	Issue 2	300303328	255-700-052
<i>STM-1 Multi-Mode and Single-Mode 1+1 MSP Modules User Guide, Release 6.3</i>	Issue 1	300303336	255-700-046
<i>STM-1 Multi-Mode and Single-Mode Modules User Guide, Release 6.3</i>	Issue 1	300303344	255-700-045

Table 3. PacketStar™ Modules Product Information Library (Printed Documents)

Document	Issue	COMCODE	Document Number
<i>Tones and Announcements Server Module User Guide, Release 6.3</i>	Issue 1	300303427	255-700-121
<i>Voice 2-Wire Office Module User Guide, Release 6.3</i>	Issue 1	300303351	255-700-047
<i>Voice 2-Wire Station Module User Guide, Release 6.3</i>	Issue 1	300303377	255-700-048

Other Publications

Numerous books are currently available on the subject of basic telecommunications technology and specific protocols. In addition to such general reading, you should also be familiar with the specifications identified in the following documents:

- American National Standards Institute (ANSI) documents
 - ~ T1.207, Operations, Administration, Maintenance, and Provisioning (OAM&P) Terminating Test Line Capabilities and Access Arrangements
 - ~ T1.403, *af-phy-0016.000* and *af-test-0037.000*
 - ~ T1.646, *Broadband ISDN-Physical Layer Specification for UNI Including DS1/ATM*
- ATM Forum Technical Committee Specifications:
 - ~ *Circuit Emulation Service Interoperability Specification Version 2.0, af-vtoa-0078.000*
 - ~ *Specifications of (DBCES) Dynamic Bandwidth Utilization, af-vtoa-0085.000*
 - ~ *Integrated Local Management Interface Specification Version 4.0, af-ilmi-0065.000*
 - ~ *Interim Inter-switch Signaling Protocol (IISP) Specification Version 1.0, af-pnni-0026.000*
 - ~ *Private Network-Network Interface (PNNI 1.0) Specification Version 1.0, af-pnni-0055.000*
 - ~ *Private Network-Network Interface (PNNI 1.0) Specification Version 1.0 Addendum, af-pnni-0066.000*
 - ~ *Private Network-Network Interface (PNNI 1.0) Specification Version 1.0 Errata and PICS, af-pnni-0081.000*
 - ~ *Traffic Management Specification Version 4.1, af-tm-0121.000*
 - ~ *User to Network Interface (UNI) Specification Version 3.0*
 - ~ *User to Network Interface (UNI) Specification Version 3.1*
 - ~ *VTOA AAL1 Trunking Services, af-vtoa-0098.000*
- ATM Forum Implementation Agreements:
 - ~ *Inverse Multiplexing over ATM Version 1.0, af-phy-0086.000*
 - ~ *Inverse Multiplexing over ATM Version 1.1, af-phy-0086.1*

About This Guide

Audience for This Guide

- Bellcore Documents:
 - ~ *FR-796, Reliability and Quality Generic Requirements*
 - ~ *GR-63-CORE, NEBS*
 - ~ *GR-124-CORE (for OAM)*
 - ~ *GR-246-CORE (for Tones and Announcements Server Module test capability)*
 - ~ *GR-253-CORE, Issue 2, Synchronous Optical Network (SONET) Transport Systems: Common Generic Criteria (for Channelized STS-1e module)*
 - ~ *GR-499-CORE, Common Requirements for TSGR*
 - ~ *GR-820-CORE, OTGR Section 5.1, Generic Transmission Surveillance*
 - ~ *GR-1089-CORE, Emissions*
 - ~ *GR-1248-CORE, Operations of ATM Network Elements*
- CCITT Interface Between Data Terminal Equipment and Data Circuit-Terminating Equipment for Synchronous Operation of Public Data Networks, Recommendation X.21
- CTR Documents
 - ~ CTR 4
 - ~ CTR 12
 - ~ CTR 13
- ETSI 300-233, Access Digital Section for ISDN Primary Rates
- Frame Relay Forum (FRF) Implementation Agreements:
 - ~ *FRF.1—User-to-Network Interface (UNI)*
 - ~ *FRF.2—Network-to-Network Interface (NNI)*
 - ~ *FRF.3—Multi-protocol Encapsulation Implementation Agreement*
 - ~ *FRF.5—Frame Relay/ATM PVC Network Interworking*
 - ~ *FRF.8—Frame Relay/ATM PVC Service Interworking*
- IEEE 802.1D Specification
- International Telecommunication Union (ITU) Documents
 - ~ *G.703, Physical/Electrical Characteristics of Hierarchical Digital Interface*
 - ~ *G.704, Synchronous Frame Structures Used at Primary and Secondary Hierarchical Levels*
 - ~ *G.736, Characteristics of Synchronous Digital Multiplex Equipment Operating at 2048 Kb*
 - ~ *G.775, Loss of Signal (LOS) and Alarm Indication Signal (AIS)*
 - ~ *G.823, The Control of Jitter and Wander Within Digital Networks Which Are Based on the 2048 Kb/S Hierarchy*
 - ~ *I.356, B-ISDN ATM Layer Cell Transfer Performance*
 - ~ *I.361, B-ISDN ATM Layer Specification*
 - ~ *I.363, B-ISDN ATM Adaptation Layer (AAL) Specification*
 - ~ *I.371, B-ISDN Traffic Control and Congestion Control*
 - ~ *I.431, ISDN, PRI User-Network Interface Layer 1 Specifications*

- ~ I.610, *ISDN Maintenance Principles, B-ISDN OAM*
- ~ Q.2110, *B-ISDN SAAL Service Specific Connection Oriented Protocol (SSCOP)*
- ~ Q.2130, *B-ISDN SAAL Service Specific Coordination Function (SSCF) for Support of Signaling at the User-Network Interface*
- ~ Q.2931, *B-ISDN DSS2 User-Network Interface (UNI) Layer 3 Specification*
- *TIA/EIA-464-B Requirements for Private Branch Exchange (PBX) Switching Equipment* (for caller ID/flash hook signaling)
- *44.736 Mbps DS3 Physical Layer, af-uni-0010.002* (for Channelized DS3 module)
- *DS3 Physical Interface Specification, af-phy-0054* (for Channelized DS3 module)
- Sun Microsystems, JRE 1.2.1_3 Release Notes
- *Internet Engineering Task Force (IETF) Request for Comment (RFC) Documents*
 - ~ *RFC 792, Internet Control Message Protocol (ICMP)*
 - ~ *RFC 1406, Definitions of Managed Objects for the DS1 and E1 Interface Types*
 - ~ *RFC 1407, Definitions of Managed Objects for the DS3 and E3 Interface Types*
 - ~ *RFC 1595, Definitions of Managed Objects for the SONET/SDH Interface Types*
 - ~ *RFC 1661, Point-to-Point Protocol*
 - ~ *RFC 1662, PPP in HDLC-like Framing*
 - ~ *RFC 2364, PPP Over AAL-5*

Conventions Used in This Document

Text Conventions

Text Types Used in This Document

This book uses a different kind of type for each kind of text you will see on screens and equipment. In general, text you see in the book will closely resemble what you see on the screens and equipment. The following table shows how each typographical convention is used.

Appearance	How it is used
SERIF NORMAL, ALL CAPS	Text on module panels or other hardware
Fixed-width normal	Text you read on a screen

About This Guide

Technical Support

Appearance	How it is used
Sans serif bold	Menu commands followed by commands on pull-down menus (separated by commas) A menu item followed by a pull-down menu item
Serif bold	Text you type on a text-based screen or inside a field in a window Any key that you press on the keyboard
<i>Serif italics</i>	A variable name for which you will substitute your own information An argument or parameter on a command line

Icons and Symbols

Follow all safety guidelines in this document to help prevent personal injury to you and damage to the PSAX 2300 Access Concentrator system equipment. Refer to the procedures within this installation guide for important safety information and proper procedures.

Standard icons and symbols to alert you to dangers and cautions are listed below.

 **DANGER:**

Warnings for a general personal injury hazard are identified by this format.

 **WARNING:**

Warnings relating to risk of equipment damage or failure are identified by this format.

 **CAUTION:**

Warnings relating to risk of data loss or other general precautionary notes are identified by this format.

Note: Identifies additional information pertinent to the text preceding this note.

Technical Support

If you experience a problem with your PSAX 2300 system, refer to the *Lucent Technologies InterNetworking Systems Global Warranty* card that accompanied

your PSAX 2300 product shipment for instructions on obtaining support in your area.

About Lucent Technologies

History

Lucent Technologies is the communications systems and technology company formed through the restructuring of AT&T. We bring with us a tradition of more than 125 years of experience and a dedication to superior customer service.

Lucent Technologies manufactures, sells, and services a complete line of customer premises communications units, and commercial and multimedia communications and messaging systems designed and supported by our research and development unit, Bell Laboratories.

Our legacy and our spirit of innovation allow Lucent to provide our customers with the tools needed to communicate effectively, any time and anywhere, and to integrate the latest technologies into real-life solutions that help make business work.

For More Information

To learn more about the *PacketStar*[™] family of ATM Multiservice Access Concentrators and the complete line of Lucent Technologies products, visit our Web site at www.lucent.com.

About the *PacketStar*[™] PSAX Product Family

Lucent's *PacketStar*[™] PSAX family provides a complete range of multiservice access concentrators, as described in Table 4.

This manual applies to the PSAX 2300 only. For details on installing, operating, or managing other PSAX equipment, see the appropriate guides for those chassis.

Table 4. *PacketStar*[™] PSAX Product Family

Target Market	Device Name	Application/Description
Small Customer Premises	AC 60	The <i>PacketStar</i> AC 60 is ideal for enterprise networks seeking to consolidate branch office voice, video, and data traffic onto a single ATM network. Supporting up to four user interfaces, this system offers high port-density in a small footprint for mid-to-large sized customer premises applications. It supports a full range of interfaces such as DS1/E1, DS3/E3, OC-3c and STM-1 in both Single- and Multi-mode, 10/100BaseT Ethernet, analog voice, or digital voice with processing capabilities.

About This Guide

About Lucent Technologies

Table 4. PacketStar™ PSAX Product Family

Target Market	Device Name	Application/Description
	PSAX 15	<p>The <i>PacketStar</i> PSAX 15 offers a low-speed T-1/E-1 integrated access option, especially for AAL-2 voice-focused applications.</p> <p>A scalable, multiservice access concentrator for enterprise applications, the <i>PacketStar</i> PSAX 15 optimizes wide area network (WAN) bandwidth with toll-quality voice compression, traffic optimization, and port scalability from T-1/E-1 to OC-3c connections.</p>
	PSAX 20	<p>The <i>PacketStar</i> PSAX 20 system is the most scalable and flexible multiservice access product in its class. This scalability enables service providers to meet the demands of a growing enterprise customer with a single-edge solution.</p> <p>The PSAX 20 optimizes wide area network bandwidth with toll-quality voice compression, traffic optimization, and port scalability from T1/E1 to OC-3c/STM-1 connections.</p>
	PSAX 50	<p>The <i>PacketStar</i> PSAX 50 provides a low-cost, entry-level platform for multiservice access onto a public or private asynchronous transfer mode (ATM) network at speeds up to T-1/E-1. The PSAX 50 unit accommodates up to 10 I/O interfaces, supporting a variety of voice, video, and data connections. It is upgradable to the more powerful PSAX 100 unit simply by upgrading the software.</p> <p>This low-speed T-1/E-1 integrated access solution is also appropriate for remote sites.</p>
Customer Premises	PSAX 100	<p>The <i>PacketStar</i> PSAX 100 unit offers high-speed (n X T-1/E-1 to OC-3c/STM-1) integrated access at the customer's premises. Designed to enable service providers to offer multiple applications and broadband services to corporate customers, the <i>PacketStar</i> PSAX 100 unit cost-effectively extends ATM services beyond the wide area network, into the customer premises.</p> <p>The PSAX 100 unit can accommodate up to 17 I/O interfaces that support a high mix of native applications and broadband services, including 10/100 Mbps Ethernet, frame relay, circuit-switched services for voice and video applications, and high-speed ATM connections for broadband services. The PSAX 100 also supports a wide range of ATM interfaces for network uplink access to a wide area network, including T-1/E-1, T-1/E-1 ATM IMA, T-3/E-3, and OC-3c/STM-1.</p>

Table 4. PacketStar™ PSAX Product Family

Target Market	Device Name	Application/Description
	PSAX 600	<p>The <i>PacketStar</i> PSAX 600 is a more sophisticated unit, ideal for low-end multiservice access concentration in the customer's premises or small central office. Designed to enable service providers to offer multiple applications and broadband services to multitenant and large enterprise customers, the <i>PacketStar</i> PSAX 600 furnishes a powerful, mid-level broadband service access solution and low-speed ATM access concentration.</p> <p>The PSAX 600 economically supports a high mix of applications and services enabling service providers to deliver advanced data, voice, and video services. The PSAX 600 unit can accommodate up to 57 I/O interfaces supporting 10/100 Mbps Ethernet ports, frame relay, circuit-switched services for voice and video applications, and high-speed ATM connections for broadcast-quality MPEG video over ATM, and high-throughput router and server connections, as well as advanced broadband services.</p>
Carrier Class Office	PSAX 1250	<p>The <i>PacketStar</i> PSAX 1250 is designed to provide a full range of central office-based multiservice access concentration. Ideal for the central office or a large enterprise's multiservice access concentration, the <i>PacketStar</i> PSAX 1250 provides highly reliable network access for TDM voice, frame relay, and ATM data applications.</p> <p>The PSAX 1250 I/O interfaces (that include 75 bps to 30 Mbps serial, T-1/E-1, DS3/E-3/STS-1e, OC-3c/STM-1, Ethernet and 2-wire station/office options) are supported by a sophisticated package of features. These features include a PNNI (Private Network-to-Network Interface), ILMI (Integrated Local Management Interface), 1+1 APS (Automatic Protection Switching), trunk alarming, and an SS7 signaling gateway interface. Featuring a 1.2 Gbps ATM cell bus architecture, carrier-class reliability, and full redundancy, the PSAX 1250 is a cost-effective access switch solution for bridging to legacy equipment.</p>
	PSAX 2300	<p>The <i>PacketStar</i> PSAX 2300 offers carrier-grade, high-density multiservice access concentration. Designed to provide multiservice access concentration in the central office or for a large enterprise customer, the <i>PacketStar</i> PSAX 2300 provides network access for TDM voice, frame relay, and ATM data applications.</p> <p>The PSAX 2300 I/O interfaces (that include 75 bps to 30 Mbps serial, T-1/E-1, DS3/E3/STS-1e, OC-3c/STM-1, Ethernet and 2-wire station/office) are supported by a sophisticated package of features, such as PNNI (Private Network-to-Network Interface), ILMI (Integrated Local Management Interface), 1+1 APS (Automatic Protection Switching), trunk alarming, and an SS7 signaling gateway interface. Featuring a 3.9 Gbps ATM cell bus architecture, carrier-class reliability, provisions for OC-12c interfaces, and N x T-1/E-1 module protection switching, the PSAX 2300 solves many demanding and diverse network design challenges with ease.</p>

About This Guide
Comments on This Guide

Comments on This Guide

To comment on the *PSAX 2300 Access Concentrator Installation and Operation Guide*, please complete the comment card that accompanied your shipment and mail it to the following address:

Manager, Information Design and Development
InterNetworking Systems
Broadband Carrier Networks
Access Technology Group
Lucent Technologies
8301 Professional Place
Landover, MD 20785
U.S.A.

You may also fax the comment card to us at: 301-809-4540.

Getting Started



Overview of This Section

This section provides a general description of the *PacketStar*[™] PSAX 2300 Access Concentrator hardware components, hardware and environmental specifications for the PSAX 2300 Access Concentrator, and guidelines for protecting the equipment from ESD damage. Read this section to ensure that you have ordered the equipment you need for your environment, and that you have all required tools and materials to perform installation.

Using the Installation Checklist

Planning and preparation are essential for completing a successful installation and system startup. An Installation Checklist is provided in the front of this guide. The checklist serves as an overview of the tasks as you progress through the procedures in this guide. Check off the tasks as you complete them.

Before You Begin

Before you start setting up, configuring, and using your new PSAX 2300 system, be sure you complete the following:

- Carefully read the safety cautions listed in the section, “Safety Information,” at the beginning of this guide.
- Record your site-specific specifications such as the IP addresses you will use, and the connections and interfaces you will need. Decide which user names and passwords you will assign.
- Make sure you have IP connectivity to all PSAX devices to be managed.
- Determine the numbering scheme for the in-band connections you will be using.

Product Modification or Repair

Do not make electrical or mechanical modifications to any of the components in the PSAX 2300 systems. Lucent Technologies is not responsible for the safety or the performance of a modified Lucent Technologies product. Do not remove or attempt to repair or modify any components inside the PSAX 2300 chassis. Do not attempt to repair or modify any failed I/O or server modules. Modifying or tampering with PSAX 2300 components voids your warranty.

Getting Started

PSAX 2300 System Hardware Components

PSAX 2300 System Hardware Components

The PSAX 2300 Access Concentrator has two options for different system configurations. The following hardware components make up the PSAX 2300 system:

- Chassis—two configurations available:
 - For installing the PSAX 2300 chassis in a standard 48.26-cm (19-in.) or 58.2-cm (23-in) rack cabinet or telco frame, the installation kit provides two types of brackets:
 - ~ Wide angle brackets for mounting the chassis in a 58.2-cm (23-in.) telco frame
 - ~ Small angle brackets for mounting the chassis in a 48.26-cm (19-in.) rack cabinet or telco frame
- Common equipment modules (Redundant common equipment modules are required on the PSAX 2300):
 - ~ -48 V dc Power Supply module
 - ~ Stratum 3–4 module
 - ~ Central processing unit (CPU) module

- User-selected input/output (I/O) and server modules

A variety of I/O and server modules are available. See the PSAX 2300 Access Concentrator User Guide for more information about the PacketStar I/O and server modules (see "Related Reading" on page 1).

PSAX 2300 System Hardware Specifications

PSAX 2300 Chassis Specifications

The specifications for the PSAX 2300 chassis are given in Table 5.

Table 5. PSAX 2300 Chassis Hardware Specifications

Specification	Description
Slot configuration:	44.45-cm (17.5-inch) chassis—19 total: 17 slots for CPU modules and user-selected I/O and server modules 2 reserved slots for Stratum 3–4 modules
Height:	39.90 cm (15.7 in.)
Width:	44.45 cm (17.5 in.)
Depth:	30.48 cm (12.0 in.)
Weight:	Empty: 8.17 kg (18.0 lb) Fully populated: 22.29 kg (49.1 lb)
Material:	Aluminum
Color:	Black
Cooling method:	Forced convection using two variable-speed fans (one per Power Supply module)

Environmental Specifications for the PSAX 2300 Chassis

Table 6. Environmental Specifications for the PSAX 2300 Chassis

Specification	Range of Values
Operating temperature:	32° to 122° F 0° to 50° C
Storage temperature:	-40° to +158° F -40° to +70° C
Operating relative humidity:	40 to 60%, optimum; Up to 95%, noncondensing

Getting Started

PSAX 2300 Power Supply Module Specifications

The specifications for the PSAX 2300 -48 V dc Power Supply module are given in Table 7.

Table 7. -48 V dc Power Supply Specifications for the PSAX 2300 System

Specification	Description
Input power:	
• Voltage range:	-42.5 to -56.5 V dc
• Current required:	12 A
• Maximum power:	400 W
Height:	9.55 cm (3.76 in.)
Width:	21.27 cm (8.375 in.)
Depth:	26.67 cm (10.50 in.)
Weight:	2.37 kg (5.25 lb)
Operating temperature:	0° to 50° C (32° to 122° F)
Operating humidity:	up to 95%, noncondensing
Storage temperature:	-40° to +70° C (-40° to 158° F)
Units per system:	2 required (redundant)
Connector (backplane):	Module edge connector

PSAX 2300 Stratum 3–4 Module Specifications

The specifications for the PSAX 2300 Stratum 3–4 module are given in Table 8.

Table 8. PSAX 2300 Stratum 3–4 Module Specifications

Specification	Description
Slot configuration:	Two middle slots labeled A and B
Height:	15.75 cm (6.2 in.)
Width:	1.57 cm (0.62 in.)
Depth:	24.13 cm (9.5 in.)
Weight:	0.22 kg (0.5 lb)
Operating temperature:	0° to 50° C (32° to 122° F)
Operating humidity:	Up to 95%, noncondensing
Storage temperature:	-40° to 70° C (-40° to 158° F)
Units per system:	2 required (redundant)
Synchronization source:	Internal or external
Accuracy:	Stratum 3 or 4, selectable
External clock input:	Standard 8 kHz/64 kHz composite clock
Connector:	One RJ-45 connector on the faceplate

▲ CAUTION:
The external synchronization interface port provided on the Stratum 3–4 module is intended only to be connected to an in-building reference clock signal. The port is not intended to be directly connected to a network interface as outside plant.

PSAX 2300 CPU Module Specifications

The hardware specifications for the PSAX 2300 CPU module are given in Table 9.

Table 9. PSAX 2300 CPU Module Specifications

Specification	Description
Slot configuration:	Slots 16 and 17
Height:	15.75 cm (6.2 in)
Width:	2.41 cm (0.95 in)
Depth:	24.13 cm (9.5 in)
Weight:	On average, 0.45 kg (1 lb)
Units per system:	2 required (for redundancy)
Power consumption	18 W, average
Processing:	RISC microprocessor
Memory:	140 MB flash drive 64 MB RAM
Connectors:	One RJ-45 connector labeled ETHERNET and one RJ-12 connector labeled CONSOLE on the faceplate
LED indicators:	Three indicators: <ul style="list-style-type: none"> • ACTIVE—green • LOAD—amber (yellow) • FAIL—red

PacketStar™ I/O and Server Modules Specifications

Added average weight of modules, per Fernando Gutierrez. Also added what extra slots on PSAX 2300 cover. When PSAX 4500 comes out, these will be the same.

Getting Started

PSAX 2300 System Hardware Specifications

The hardware specifications that all *PacketStar*[™] I/O and server modules have in common are given in Table 10. Specifications unique to each *PacketStar*[™] module are given in the individual *PacketStar*[™] Module User Guides.

Table 10. Hardware Specifications for the *PacketStar*[™] I/O and the Server Modules

Specification	Description
Slot configuration for the PSAX 2300 chassis:	Slots 1–8, 9–15. Two slots between 8 and 9 are reserved for Stratum 3-4 modules, and two slots after 15 are for CPU modules.
Height:	15.75 cm (6.2 in.)
Width:	2.41 cm (0.95 in.)
Depth:	24.13 cm (9.5 in.)
Weight:	On average, 1.0 lb (0.45 kg)

Environmental Specifications for Modules

The environmental specifications for the I/O and Server modules are given in Table 11.

Table 11. Environmental Specifications for I/O and Server Modules

Specification	Range of Values
Operating temperature:	32° to 122° F 0° to 50° C
Storage temperature:	-40° to +158° F -40° to +70° C
Operating relative humidity:	40 to 60%, optimum; Up to 95%, noncondensing

I/O and Server Modules Memory, Bandwidth, and Power Specifications

Memory allocation, bandwidth classification (based on the module throughput), and power consumption for each *PacketStar* I/O and server module are given in Table 12. The bandwidth classification is provided to help you place modules in optimal positions in the PSAX 1250 and PSAX 2300 chassis.

Table 12. Memory Allocation, Bandwidth Classification, and Power Consumption per Module

Module Type	Total Amount of SDRAM (MB)	Module Program and Data Space (MB)	Maximum Input Buffer (MB)	Output Buffer (MB)	Bandwidth Classification	Maximum Heat Dissipation/Power Consumption (Watts)
Channelized DS3	24 MB	6 MB	1 MB	12 MB	High	13 W
Channelized STS-1e T1	24 MB	6 MB	1 MB	12 MB	High	13 W
Enhanced DS1	16–64 MB	8 MB	1 MB	Total minus 9 MB	Low	18 W
DS1 IMA	16–64 MB	8 MB	1 MB	Total minus 9 MB	Low	18 W
DS3 ATM	8–64 MB	3 MB	1 MB	Total minus 4 MB	High	15 W
DS3 Frame Relay	8–64 MB	4 MB	1 MB	Total minus 4 MB	High	13 W
DS3 IMA	24 MB	6 MB	4 MB	12 MB	High	13 W
DSP2A Voice Server	512 KB (SRAM)	384 KB (SRAM)	N/A	N/A	Low	14 W
DSP2B Voice Server	512 KB (SRAM)	384 KB (SRAM)	N/A	N/A	Low	14 W
DSP2C Voice Server	1 MB (SRAM)	512 KB (SRAM)	N/A	N/A	Low	16-17 W
Enhanced E1	16–64 MB	8 MB	1 MB	Total minus 9 MB	Low	18 W
E1 IMA	16–64 MB	8 MB	1 MB	Total minus 9 MB	Low	18 W
E3 ATM	8–64 MB	3 MB	1 MB	Total minus 4 MB	High	15 W
Ethernet	64 MB	8 MB	4 MB	4 MB	Low	16 W
High-Density E1 (21-port)	24 MB	6 MB	1 MB	12 MB	High	14.5 W
High Speed	8–64 MB	3 MB	1 MB	Total minus 4 MB	High	20 W
Medium-Density DS1 (12-port)	24 MB	6 MB	1 MB	12 MB	High	14.5 W
Multi-Serial	8–64 MB	3 MB	1 MB	Total minus 4 MB	Low	15 W

Getting Started

Facility Power Source Requirements

Table 12. Memory Allocation, Bandwidth Classification, and Power Consumption per Module

Module Type	Total Amount of SDRAM (MB)	Module Program and Data Space (MB)	Maximum Input Buffer (MB)	Output Buffer (MB)	Bandwidth Classification	Maximum Heat Dissipation/Power Consumption (Watts)
OC-3c MMAQ and SMAQ (two types); STM-1 MMAQ and SMAQ (two types)	8-64 MB	3 MB	Total minus 3 MB, divided by 2	Total minus 3 MB, divided by 2	High	15 W
OC-3c MMTS and SMTS (two types); STM-1 MMTS and SMTS (two types)	8-64 MB	3 MB	Total minus 5 MB	2 MB	High	15 W
OC-3c MM 1+1 APS and SM 1+1 APS (two types)	32 MB	8 MB	12 MB	12 MB	High	11.5 W
Route Server	64 MB	8 MB	N/A	N/A	Low	15 W
STM-1 MM 1+1 MSP and SM 1+1 MSP (two types)	32 MB	8 MB	12 MB	12 MB	High	11.5 W
Tones and Announcements Server	1 MB (SRAM)	512 KB (SRAM)	N/A	N/A	Low	16-17 W
Voice 2-Wire Office	8 MB	4 MB	N/A	N/A	Low	14 W
Voice 2-Wire Station	8 MB	4 MB	N/A	N/A	Low	15 W

Note: The I/O buffers carry 16,384 cells per megabyte for all Access Concentrator modules except the Voice 2-Wire Office module, the Voice 2-Wire Station module, and the DSP2A, DSP2B, and DSP2C Voice Server modules, which have no cells carried on the I/O buffers.

Facility Power Source Requirements

The facility power source requirements for the PSAX 2300 chassis are provided in Table 13.

Table 13. Facility Power Source Requirements

Requirement	Description
Direct-current source input:	
• Voltage range:	-42.5 to -56.5 V dc
• Maximum current:	12 A

Table 13. Facility Power Source Requirements

Requirement	Description
• Maximum power:	400 W
Facility grounding:	Availability of common grounding points in the facility is recommended

Electrostatic Discharge (ESD) Precautions

The room in which the PSAX 2300 will be located must have built-in precautions to provide protection from ESD damage to electronic components. To protect your PSAX 2300 system, observe the precautions given below.

Grounding Wrist Straps

Using a grounding wrist strap (see Figure 1) is recommended when installing and operating the PSAX 2300.

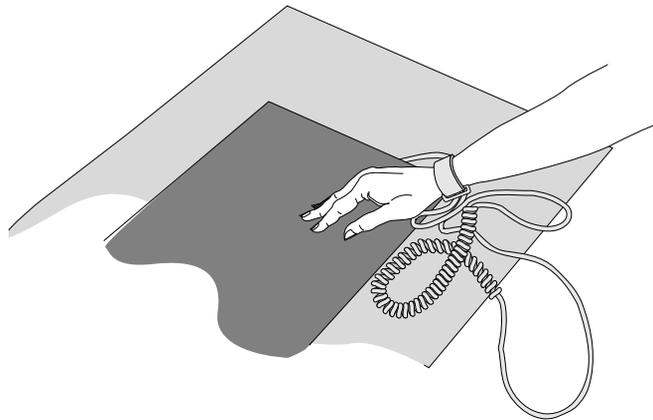


Figure 1. Grounding Wrist Strap

Follow these guidelines for grounding wrist straps:

- Attach at least one wrist strap to a common ground for each unit/electronic rack to be handled.
- Wrist straps or wrist strap cords should have built-in 1 mega ohm (minimum) resistors for operator protection.
- Wrist straps and wrist strap cords should be UL listed.
- Ensure that the cord for the wrist strap is long enough so that you can wear it while working at the cabinet front or back.

Getting Started

Electrostatic Discharge (ESD) Precautions

Place the wrist strap so you can touch it first and discharge through it instead of discharging on the cabinet.

Floor Covering

Be sure that the room has antistatic flooring (conductive mat, carpeting, or tiles) to minimize static buildup as you walk across the room. Follow these guidelines for installing and maintaining proper flooring:

- The use of grounding foot straps is recommended while walking in rooms providing antistatic flooring. Foot straps provide additional protection against electrostatic discharge. Foot straps should have built-in 1 mega ohm (minimum) resistors for your protection.
- Wool carpeting is not an acceptable flooring.

Other types of carpeting (when used) require daily spraying with a topical antistatic chemical before any work in the system room is performed. This constant attention to carpeting maintenance is acceptable, but time-consuming.

Humidity

Maintaining the proper humidity in the room where the PSAX 2300 system will be located helps control many static problems. This is especially important during the winter heating season. Follow these guidelines to maintain proper humidity for your PSAX 2300 system:

- Maintain the relative humidity of the room between 40 and 60 percent.
- To avoid damage to equipment, do not allow the humidity to increase to the level where condensation would appear on surfaces.

Clothing

When working with the PSAX 2300 system, avoid wearing clothing made from wool or synthetic materials. Try to minimize contact between clothing and electronic units.

Handling Chassis, Modules, and Components

Follow these guidelines for proper installation and handling of the PSAX 2300 hardware to minimize ESD damage.

- Remove the chassis, modules, and components from their shipping containers immediately before you are ready to install them.
- When installing modules and components, use wrist straps connected to a common ground to prevent electrostatic discharge damage. (A common ground is a circuit that provides a ground to the workplace, personnel, grounding wrist straps and foot straps, and so on—a single ground system.)

Store components in static-shielding bags when those components are not in use.

Ventilation



DANGER:

Openings in the unit are provided for ventilation, to protect it from overheating. These openings must not be blocked or covered. Inadequate ventilation may result in overheating and possible failure of equipment.

Adequate ventilation around the PSAX 2300 system is critical. Be sure that the ventilation openings are not blocked in any way.

If you do not provide adequate ventilation, the equipment might overheat and fail. In table-top systems, the cooling fans could cause buildup of dust on the modules in the chassis. To prevent module failure due to dust contamination, you must periodically check for and remove any dust buildup inside the chassis.

Equipment failure due to lack of adequate ventilation, or due to heavy dust contamination voids your warranty.

Equipment Grounding

Be sure that the PSAX 2300 chassis is properly grounded to a common electrical ground. The grounding of the PSAX 2300 chassis is provided from the terminal block on the rear of the chassis. The chassis grounding point must be connected to a common electrical ground to provide proper protection. See "Grounding the Chassis" on page 31 for grounding instructions.

Tools and Materials Needed

Before beginning installation procedures, be sure to have the following tools and materials on hand:

- Grounding wrist strap and foot strap
- Small, pocket-sized slotted (flathead) screwdriver
- Cross-recessed screwdrivers:
- Optional power screwdriver (this will save time if you are installing multiple units)
- Nut driver
- Wire cutters and wire strippers
- Plastic cable ties (tie wraps; included with your installation kit)
- Assorted screws (included with your installation kit)

Getting Started

Tools and Materials Needed

- Wire (8-gauge) for grounding the PSAX 2300 chassis
- Metal file (for grounding the PSAX 2300 chassis to the telco frame)
- Wax string (optional for cable management)

Installing and Operating the PSAX 2300 System



Overview of This Section

This section provides detailed procedures for installing the PSAX 2300 Access Concentrator system.

Note: It is recommended that two people (an installer and an assistant) install this equipment. The time required to install a redundant PSAX 2300 system is approximately 3 hours.

▲ CAUTION:
Before you begin using the procedures in this section, be sure you have read the "Safety Warnings" and "Getting Started" sections. If you have any questions about or problems with the preparatory tasks, be sure to call Lucent Technologies Technical Support first before beginning the actual installation of the equipment (see "Technical Support").

Setting Up the Hardware

The PSAX 2300 system is shipped for installation in either a 48.26-cm (19-in) rack cabinet or telco frame, or in a 58.2-centimeter (23-inch) telco frame. See "Mounting the Chassis" on page 28.

To prepare for mounting the PSAX 2300 chassis, determine how you want to position the PSAX 2300 mounting angle brackets, either in the flush-front or mid-mount position. See "Attaching Angle Brackets to the Chassis" on page 25.

▲ WARNING:
To avoid the risk of personal injury or possible damage to your equipment or configuration, you must install the PSAX 2300 equipment in a restricted access location.

Attaching Angle Brackets to the Chassis

For installing the PSAX 2300 chassis in a standard 48.26-cm (19-in.) or 58.2-cm (23-in) rack cabinet or telco frame, the installation kit provides two types of brackets:

- Wide angle brackets for mounting the chassis in a 58.2-cm (23-in.) telco frame
- Small angle brackets for mounting the chassis in a 48.26-cm (19-in.) rack cabinet or telco frame

The following options are available for positioning the PSAX 2300 chassis in the rack or frame:

Installing and Operating the PSAX 2300 System

Setting Up the Hardware

- Mounting angle brackets are placed in a position (front edge of the chassis sidewall), with rack-attaching flanges facing the front for flush-front mounting in a equipment rack. See Figure 2 and Figure 3 for the positioning of the brackets.

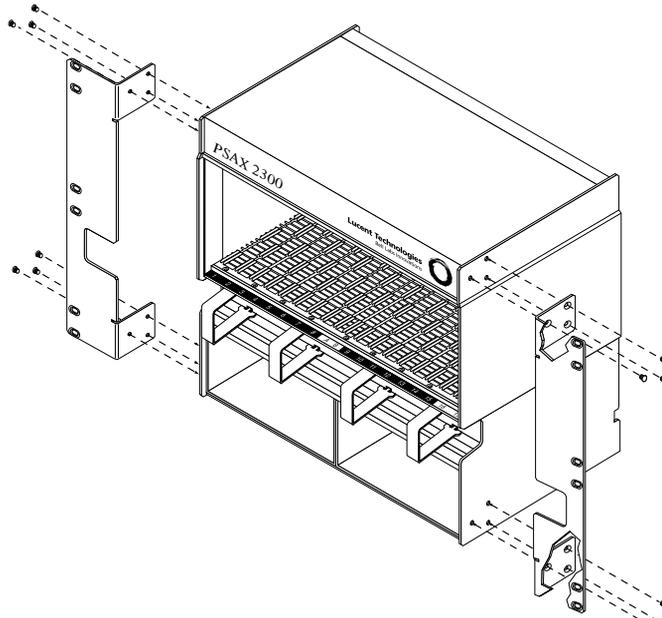


Figure 2. PSAX 2300 Chassis with Front-Position-Mounted Wide Brackets to Be Installed in a 23-inch Rack

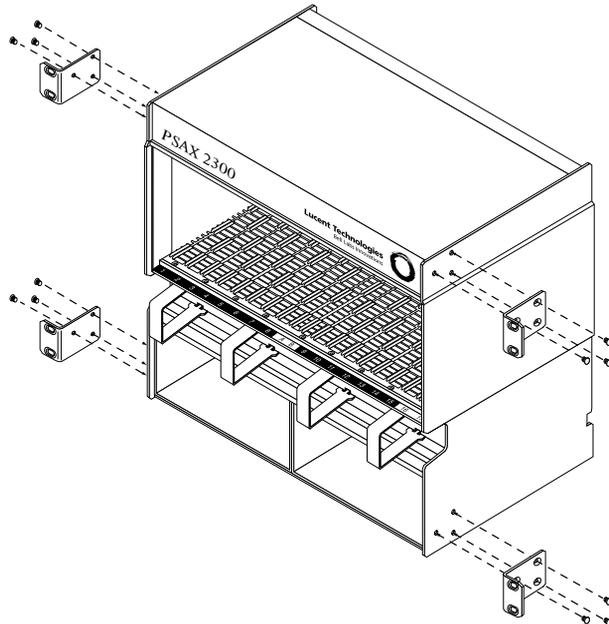


Figure 3. PSAX 2300 Chassis with Front-Position-Mounted Small Brackets to Be Installed in a 19-inch Cabinet or Rack

Installing and Operating the PSAX 2300 System

Mounting the Chassis

- Mounting angle brackets are placed in a position with frame-attaching flanges facing the rear for mid-position mounting in a telco frame. See Figure 4 for the positioning of the brackets.

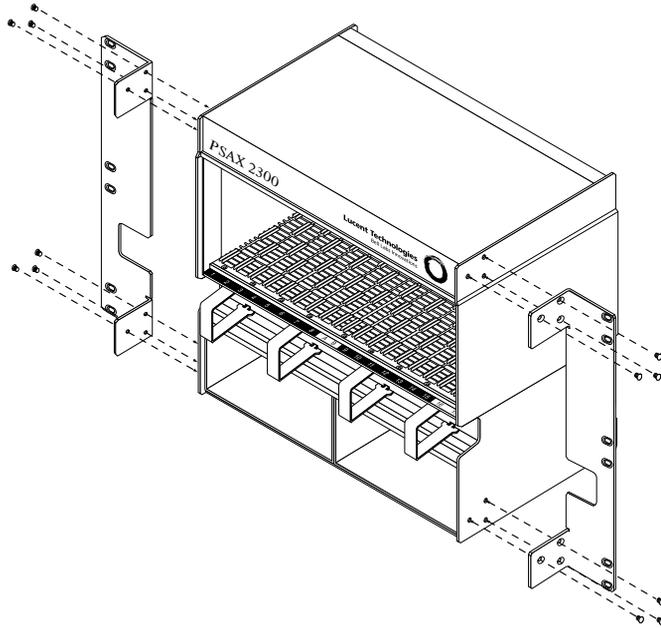


Figure 4. PSAX 2300 Chassis with Mid-Position-Mounted Wide Brackets to Be Installed in a 23-inch Rack

Do the following to attach either the wide or the small angle brackets to the chassis:

- 1 Remove the PSAX 2300 chassis and the installation kit from the packaging material. You should save the original carton (including cushioning foam material and module packaging) in which the PSAX 2300 chassis was shipped. You can re-use the packaging to ship the system safely to another location in the future (see "Shipping the System" on page 45).
- 2 Position the angle brackets in the desired position.
- 3 Insert the screws to fasten the brackets to the chassis.

Mounting the Chassis

Before installing the chassis in a rack cabinet or telco frame, you must attach the angle brackets in the desired position to the PSAX 2300 chassis (see "Attaching Angle Brackets to the Chassis" on page 25).

⚠ DANGER:

When populated with modules, the PSAX 2300 chassis weighs approximately 22.29 kg (49.1 lb). Lifting or holding such a load while trying to fasten it to a rack can be hazardous, especially when working alone. To avoid personal injury or damage to the equipment, mount and securely bolt the chassis to the rack or the frame before inserting the modules. Two installers should perform this procedure.

Perform the following steps to mount the chassis to a rack or frame:

- 1 Place the chassis top-side up (with the slot numbers visible on a flange just below where modules are inserted) in the desired position in the rack cabinet or the frame.
- 2 Align the holes on the mounting brackets with the holes on the telco frame. (Use a network diagram provided by your network designer, if available, to identify the correct location for the chassis.) Two installers should complete this step so that one person can hold the chassis in place, while the other person inserts the screws through the mounting brackets and into the cabinet or frame.
- 3 Secure the chassis to the cabinet or the frame with the screws provided in the installation kit as shown in Figure 5, Figure 6 on page 30, and Figure 7 on page 30.

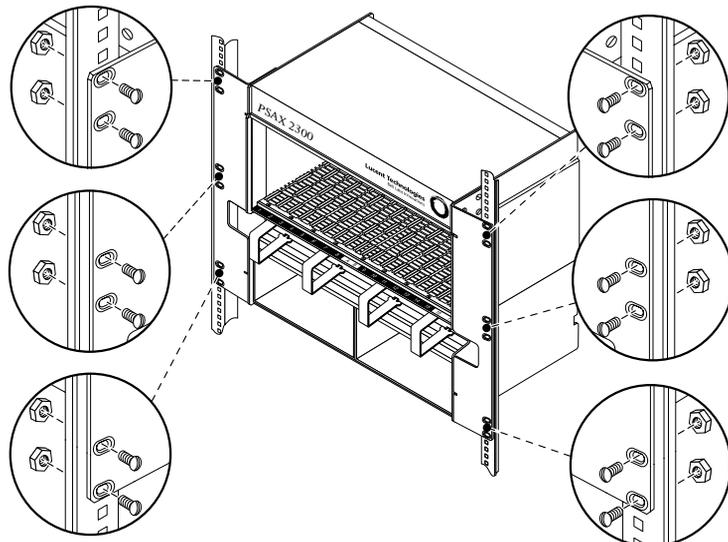


Figure 5. Securing the PSAX 2300 Chassis to a 23-in. Telco Frame (Flush-Mount Position)

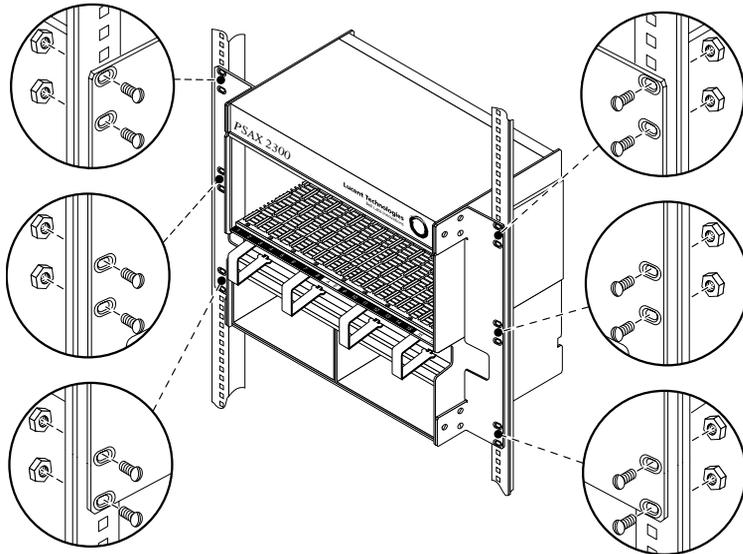


Figure 6. Securing the PSAX 2300 Chassis to a 23-in. Telco Frame (Mid-Mount Position)

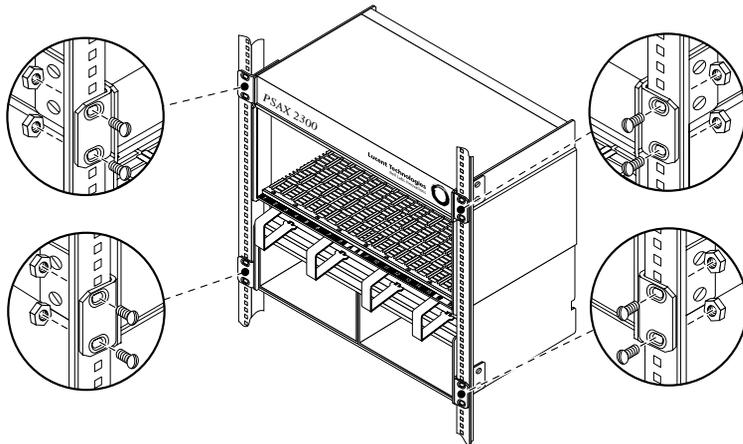


Figure 7. Securing the PSAX 2300 Chassis to a 19-in. Telco Frame (Front-Mount Position)

- 4 Repeat steps 1 through 3 for each chassis in the rack or frame.

Grounding the Chassis

▲ WARNING:
When using a DSP module and an Enhanced DS1/E1 module with a PBX and/or key telephone system, the PSAX 2300 system and your equipment must use a common chassis ground connection to avoid ground current loops, which could affect voice quality.

Be sure that the PSAX 2300 is properly grounded to a common electrical ground. Use one of the following methods to ground the chassis.

Connect the facility ground wire to the PSAX 2300 chassis by following these steps:

1. Insert the bare end of the facility grounding wire into the terminal block, labeled FGND, which is located on the rear of the chassis housing.
2. Using a slotted screwdriver, tighten the captive screw in the terminal block securely as shown in Figure 8

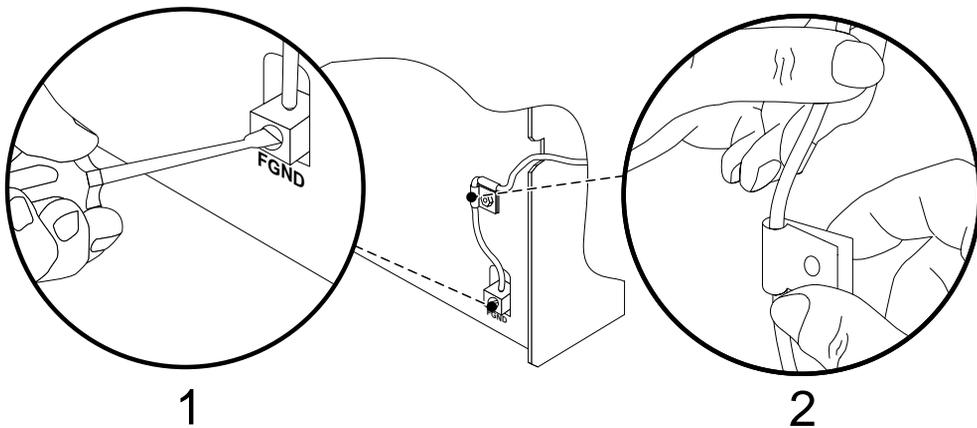


Figure 8. Attaching the Ground Wire and Strain-Relief Retaining Clamp to the Terminal Block

3. Place two strain-relief retaining clamps around the wire (also shown in Figure 8), push the two clamps positioned at right angles onto the threaded stud, and securely attach the nut to the stud with a nut driver.
4. Connect the other end of the grounding wire to either the telco frame (if the frame is grounded) or to the facility grounding point.

Connecting the Facility Power Wires

⚠ DANGER:

Ensure that a fuse panel is already installed in the rack cabinet or telco frame and the facility power is properly attached to the fuse panel on the rack. Make sure the power to the fuse panel is turned off.

Before you begin the following procedure, check with the facility manager to ensure that a fuse panel has been properly installed in the cabinet or rack.

- 1 Turn off the facility power at the fuse panel.
- 2 To prepare your power cabling, cut off 1/4-in. insulation on either end of the red and black power wires using wire strippers, and twist the bare strands of wire together, as shown in Figure 9.

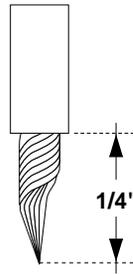


Figure 9. Preparing the End of a Bare Wire

- 3 Connect the red (-48 V dc) and black (return) wires at the fuse panel.

- 4 Insert the bare ends of the red and black wires into the openings in the terminal block on the rear of the chassis housing, placing the red wire into the opening labeled -48V and the black wire into the opening labeled RTN, as shown in Figure 10.

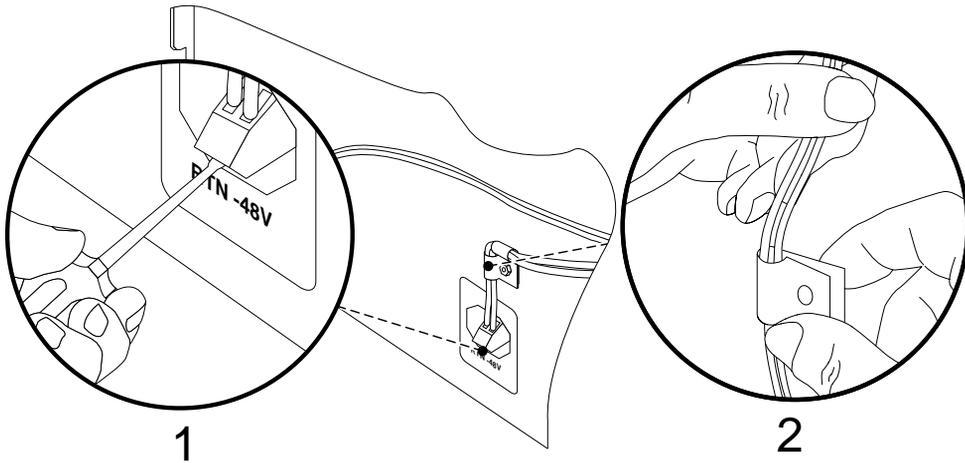


Figure 10. Attaching the Red and Black Wires and Strain-Relief Retaining Clamps to the Terminal Block

- 5 Tighten both captive screws in the terminal block to hold the wires firmly in place.
- 6 Place two strain-relief retaining clamps around the wire (also shown in Figure 10), push the two clamps positioned at right angles onto the threaded stud, and securely attach the nut to the stud with a nut driver.
- 7 Repeat steps 2 through 6 for attaching the second set of red and black wires to the second terminal block.

Installing and Operating the PSAX 2300 System

Installing the Common Equipment Modules

See Figure 11 for an illustration of how the rear of the chassis appears when facility power and ground wires are properly attached.

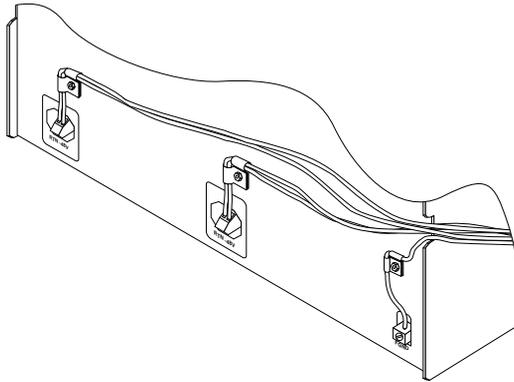


Figure 11. Rear of Chassis with Completed Attachment of Facility Power and Ground Wires

Note: Do not yet turn on the power at the fuse panel.

Installing the Common Equipment Modules

Install the common equipment modules first in the PSAX 2300 chassis, before installing the I/O and server modules. See Figure 12 for an illustration of slot numbering on the 48.26-cm (19-in) PSAX 2300 chassis.

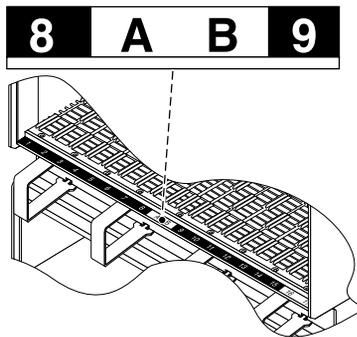


Figure 12. Slot Numbers in the PSAX 2300 Chassis

Installing the Power Supply Modules

Perform the following steps to install the Power Supply modules in the chassis.

Note: Do not yet turn on the power at the fuse panel.

- 1 Slide the Power Supply module into one of the large openings at the bottom of the chassis, and push it firmly until it snaps into the chassis backplane, as shown in Figure 13.

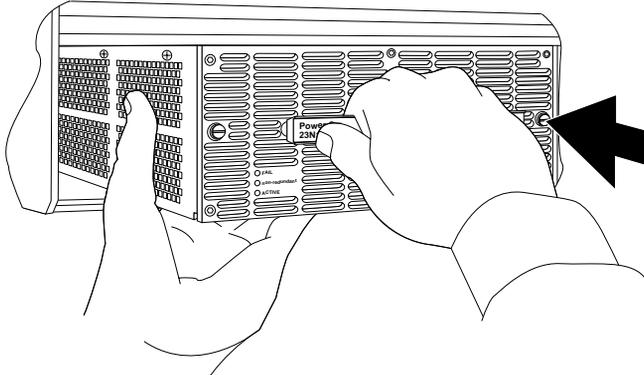


Figure 13. Inserting the PSAX 2300 Power Supply Module into the Chassis

- 2 Using a slotted screwdriver, tighten the two captive screws on both sides of the power supply module, as shown in Figure 14.

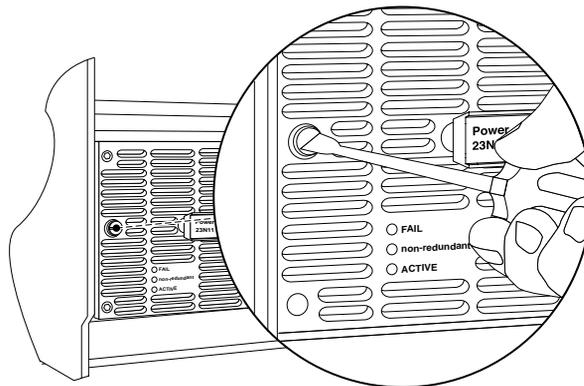


Figure 14. Securing the Power Supply Module to the Chassis

- 3 Repeat steps 1 and 2 to install the second (redundant) Power Supply module into the other large opening in the bottom of the chassis.

Installing and Operating the PSAX 2300 System

Installing the Common Equipment Modules

Installing the Stratum 3–4 Modules

Perform the following steps to install the Stratum 3–4 modules in the chassis.

- 1 Remove the Stratum 3–4 module from its protective packing material and protective bag. Save these materials for future use, if needed.
- 2 Open the ejector handle on the bottom side of the module faceplate, and slide it into slot A of the chassis. Ensure you position the module with the ejector handle near the bottom edge of the chassis opening, as shown in Figure 15.

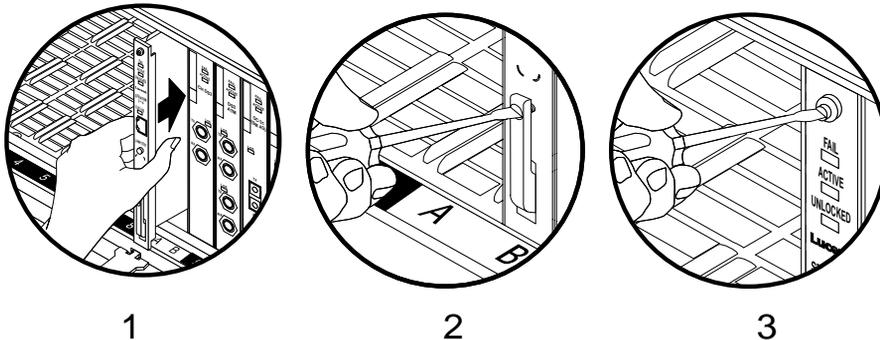


Figure 15. Installing the Stratum 3–4 Module into the Chassis

- 3 Press the ejector handle until it snaps firmly against the faceplate, and verify that the module is secure in its slot.
- 4 Tighten the captive screw in the ejector handle using a crossed-recess screwdriver, as shown in Figure 15.
- 5 Tighten the captive screw at the upper edge of the module using a slotted screwdriver, as shown in Figure 15.
- 6 Repeat steps 1 through 4 to install the second (redundant) Stratum 3–4 module into slot B.

Installing the CPU Modules

Perform the following steps to install the CPU modules in the chassis.

- 1 Remove the CPU module from its protective packing material and protective bag. Save these materials for future use, if needed.
- 2 Open the ejector handle on the top side of the module faceplate, and slide it into slot 16 in the chassis. Ensure you position the module with the ejector handle near the top edge of the chassis opening.
- 3 Press the ejector handle until it snaps firmly against the faceplate, and verify that the module is secure in its slot.

- 4 Repeat steps 1 through 3 to install the second (redundant) CPU module in slot 17.

Installing the I/O and the Server Modules

Install the PSAX 2300 common equipment modules first (see "Installing the Common Equipment Modules" on page 34), before installing the I/O and the server modules.

Perform the following steps to install the I/O and server modules in the chassis:

- 1 Open the ejector handle on the top side of the module faceplate, and slide it into any slot numbered 1 through 15 in the chassis. Ensure you position the module with the ejector handle near the top edge of the chassis opening.
- 2 Press the ejector handle until it snaps firmly against the faceplate, and verify that the module is secure in its slot.
- 3 Repeat steps 1 and 2 for all remaining I/O and server modules that you want to install.
- 4 Insert blank faceplates (separately orderable parts) into any remaining empty slots.



WARNING:

Be sure to cover all empty slots with blank faceplates to maintain optimum electromagnetic interference (EMI) shielding of the chassis.



DANGER:

The OC-3c Single Mode (SM) and the STM-1 Single Mode (SM) modules contain a laser-generating device, which emits a laser light beam from the transmit port, labeled TX on the module faceplate. While the module is inserted into an operational (power is applied) PSAX 2300 chassis, do not look directly (deliberately or accidentally) into either port, because direct contact of the laser beam will damage the human eye.



WARNING:

Once the PSAX 2300 chassis is operational (power is applied to the chassis) and the OC-3c SM or STM-1 SM module is fully inserted into the chassis backplane, use extreme caution if you need to remove the fiber-optic cable from one or both ports. Keep the protective port caps supplied with these two types of modules nearby (for example, taped to the cable for the port), and place a cap on the port immediately after removing a cable from a live module.

Connecting Your Network Cabling

Once all modules are fully installed in the PSAX 2300 chassis, use the steps in the following procedure to connect your network cabling to the module and chassis interface connectors.

Installing and Operating the PSAX 2300 System

Operating the System

- Note:** You must supply most of your own network cabling. Specialized cables for the Multi-Serial and the High-Speed modules are available as separately orderable parts.
- 1 To provide Stratum 3–4 clock synchronization, connect your network cabling (user supplied) to the EXTERNAL SYNC. port on the Stratum 3–4 faceplate.
 - 2 Connect the network cabling for your chosen I/O modules to the connectors on the module. If applicable, refer to the appropriate module user guide for pin configurations (see “Related Reading” for a list of the I/O and server module user guides).

Operating the System

Before starting up your PSAX 2300 system, be sure you have:

- Installed the Power Supply module(s), the Stratum 3–4 module(s), the CPU module(s), and the I/O and server modules
- Verified that all modules are properly seated in the chassis
- Verified that your network and electric power cabling connections are done correctly

Connecting the Console Workstation to the PSAX 2300 System

You can connect your PSAX 2300 system to a console workstation in one of two ways:

- Connect the PSAX 2300 system directly to a personal computer workstation by using the serial interface cable supplied in the installation kit.
- Connect the PSAX 2300 system to an Ethernet device by using an Ethernet cable (user-supplied).

To install the serial interface cable for connecting the PSAX 2300 system directly to a personal computer workstation (or notebook computer), use the steps in the following procedure:

Connecting the Serial Interface Cable

Begin

- 1 Install the RJ11-to-DB9 adaptor (supplied in the installation kit) into a serial port on the personal computer.
- 2 Insert one RJ11 connector on the serial interface cable (supplied in the installation kit) into the RJ11 port labeled CONSOLE on the Stratum 3–4 module faceplate, and the other RJ11 connector into the RJ11-to-DB9 adaptor .

End

To install an Ethernet cable for connecting the PSAX 2300 system to an Ethernet device, use the steps in the following procedure:

Connecting the Ethernet Cable

Begin

- 1 Insert one RJ45 connector on the Ethernet cable into the RJ45 port labeled ETHERNET on the PSAX 2300 chassis faceplate.
- 2 Insert the other RJ45 connector into the desired Ethernet device (such as a hub).

End

Supplying Power to the System

- 1 Verify that your power cabling connections on the rear of the chassis housing are secure.
- 2 Turn on the power to the chassis at the fuse panel on the rack.

System response: The PSAX 2300 system initializes (takes about 30 seconds).

Checking the LED Indicators

Once you have supplied power to your PSAX 2300 system, verify that the LED indicators on the equipment modules and each I/O module are reporting the correct status:

- 1 Check to see that the green light-emitting diode (LED) indicators, ACTIVE, on both Power Supply modules (or one for a nonredundant system) are illuminated. If the red LED indicator, FAIL, is illuminated, the Power Supply module is not functioning, or the power source is not providing power.

Note: If your PSAX 2300 system does not start up correctly, contact Lucent Technologies, Inc. Technical Support (see "Technical Support" on page 8).

- 2 Check the CPU module(s), Stratum 3–4 module(s), and each I/O module to ensure that their LED indicators are reporting the correct status. See "Status Indicators for the Common Equipment Modules" on page 40 for details.

Shutting Down the System

⚠ DANGER:

Shock hazard! Do not perform any maintenance on this equipment until you have turned off the power using the specified procedure. Failure to observe proper precautions could cause serious injury or death. Neither the PSAX 2300 chassis nor the Power Supply module has an on/off switch. The power to the chassis is controlled at the fuse panel.

- 1 Turn off the power to the chassis at the fuse panel on the rack.
- 2 Disconnect the power cables from the rear of the chassis housing.

Status Indicators for the Common Equipment Modules

The common equipment modules have light-emitting diode (LED) indicators that provide visual status of various functions in the modules. Status indicators for the Power Supply module, the Stratum 3–4 module, and the CPU module are described in this section. (See the appropriate *PacketStar™* Access Concentrator module guides for descriptions of the LED indicators on the I/O modules you are using.)

Power Supply Module Status Indicators

The -48 V dc Power Supply module has three types of LED indicators. This module is shown in Figure 16.

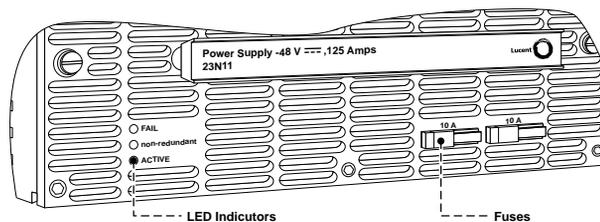


Figure 16. Status Indicators on the PSAX 2300 -48 V dc Power Supply Module

The status indicators for the Power Supply module are shown in Table 14.

Table 14. Description of the PSAX 2300 Power Supply Module Status Indicators

Color	Status	Description
Red	FAIL	Indicates that the Power Supply module is not functioning or connected to a power source.
Green	ACTIVE	Indicates that the Power Supply module is functioning properly. The Power Supply module has no on/off switch. The green ACTIVE LED is illuminated when the Power Supply module is properly inserted into the chassis backplane, and the power cabling is properly connected.
Yellow	non-redundant	Indicates two different conditions depending on whether one or two Power Supply modules are in use: When only one Power Supply module is installed, a yellow LED indicates that the chassis has no redundant module.

Stratum 3-4 Module Status Indicators

The Stratum 3-4 module has three types of LED indicators, as shown in Figure 17.

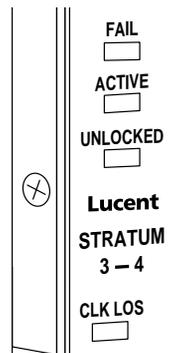


Figure 17. Status Indicators on the PSAX 2300 Stratum 3-4 Module

Installing and Operating the PSAX 2300 System
 Status Indicators for the Common Equipment Modules

The status indicators for the Stratum 3–4 module are described in Table 15.

Table 15. Description of the PSAX 2300 Stratum 3–4 Module Status Indicators

Color	Status	Description
Red	FAIL	Indicates that the Stratum 3–4 module is not functioning.
Green	ACTIVE	Indicates that the Stratum 3–4 module is functioning properly. In a redundant configuration, the green LED identifies which of the two stratum modules is providing system synchronization. The green LED on the redundant stratum module (in standby mode) is not illuminated.
Yellow	CLK LOS (Clock Loss of Signal)	Indicates a loss of signal from the external composite clock synchronization source. This LED indicator is operational only when the synchronization source value CompositeClock was selected on the Stratum Configuration screen. This LED is not operational when synchronization source values Freerun or LineTiming are selected.
	UNLOCKED	Indicates that the Stratum 3–4 is not locked to a reference signal.
	Lamp Test	Tests the operational status of the LED indicators.

CPU Module Status Indicators

The CPU module has three types of LED indicators, as shown in Figure 18.

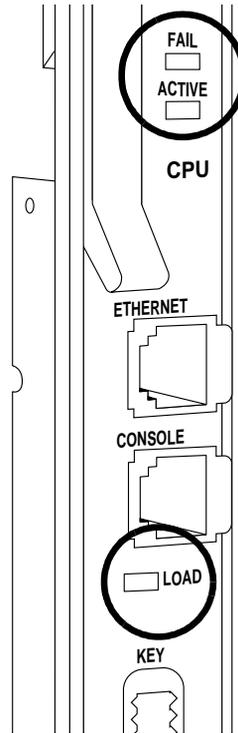


Figure 18. Status Indicators on the PSAX 2300 CPU Module

The status indicators for the CPU module are described in Table 16.

Table 16. Description of the PSAX 2300 CPU Module Status Indicators

Color	Status	Description
Red	FAIL	Indicates that the CPU module is not functioning
Green	ACTIVE	Indicates that the CPU module is functioning properly. Both modules in a redundant configuration have illuminated green LEDs.
Yellow	LOAD	Indicates that the module is initializing the PSAX 2300 system software from the hard disk on the module.

Removing Modules from the Chassis

You can remove any of the I/O and server modules, the CPU modules, the Stratum 3–4 modules, and the Power Supply modules from the PSAX 2300 chassis with the system running, that is, with power applied to the chassis. The design of the PSAX 2300 system supports live insertion and removal of modules without disrupting service on the other modules in the system.

WARNING:

Be sure to cover all empty slots with blank faceplates to maintain optimum electromagnetic interference (EMI) shielding of the chassis.

DANGER:

The OC-3c Single Mode (SM) and the STM-1 Single Mode (SM) modules contain a laser-generating device, which emits a laser light beam from the transmit port, labeled TX on the module faceplate. While the module is inserted into an operational (power is applied) PSAX 2300 chassis, do not look directly (deliberately or accidentally) into either port, because direct contact of the laser beam will damage the human eye.

WARNING:

Once the PSAX 2300 chassis is operational (power is applied to the chassis) and the OC-3c SM or STM-1 SM module is fully inserted into the chassis backplane, use extreme caution if you need to remove the fiber-optic cable from one or both ports. Keep the protective port caps supplied with these two types of modules nearby (for example, taped to the cable for the port), and place a cap on the port immediately after removing a cable from a live module.

To remove a Power Supply module, perform the following steps:

- 1 Using a screwdriver, loosen the two captive screws on both sides of the power supply module.
- 2 With steady backward pressure, pull the module straight out of the chassis.
- 3 Put the module in an ESD protective bag, and close the bag with adhesive tape.

To remove a Stratum 3–4 module, perform the following steps:

- 1 Disconnect the cable, if one is being used, from the port.
- 2 Using a screwdriver, loosen the captive screw in the ejector handle.
- 3 Pull backward on the ejector handle until the module is slightly pulled out of the slot.
- 4 Put the module in an ESD protective bag, and close the bag with adhesive tape.

To remove a CPU module or an I/O or server module, perform the following steps:

- 1 Disconnect the cables from the port(s).

Note: If you are removing an OC-3c or an STM-1 Single Mode modules, read the warning at the beginning of this procedure.

- 2 Pull backward on the ejector handle until the module is slightly pulled out of the slot.
- 3 Put the module in an ESD protective bag, and close the bag with adhesive tape.

Shipping the System

At some point, you might need to ship your PSAX 2300 system to another location. To prepare the system for shipment, do the following:

DANGER:

When populated with modules, the PSAX 2300 could weigh 22.29 kg (49.1 lb) or more. Lifting or holding such a load while trying to unfasten it from a rack can be hazardous, especially when working alone. To avoid personal injury or damage to the equipment, remove all the modules from the chassis before removing the chassis from the rack. Two installers should perform this procedure.

- 1 After removing power from the system, remove all modules from the chassis, place them in ESD protective bags, seal the bags with tape, and then place them in sturdy cartons with foam packing material (use the original packaging if you saved it).

CAUTION:

Shipping the chassis with removable modules installed may cause damage to the chassis and the modules. Damage to any of the components in the system resulting from shipping the chassis with removable modules installed could void your warranty. Only Lucent-authorized personnel should ship the PSAX 2300 chassis with a module installed.

- 2 Remove and save the mounting screws.
- 3 Place the PSAX 2300 chassis in a sturdy carton (use the original packaging if you saved it). Use foam packing material to cushion the equipment.
- 4 Secure the boxes with heavy-duty packaging tape.
- 5

Installing and Operating the PSAX 2300 System

Shipping the System

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A Pin Configurations



Overview of This Appendix

This appendix describes the pinout configurations for the connectors on the PSAX 2300 common equipment modules.

Configuration for the CPU Connectors

Two different interfaces are available for direct access to the CPU module. You can use the console serial interface or the Ethernet interface to connect to the terminal emulator for configuring and managing the PSAX 2300 system.

Console Serial Interface

The serial port console interface of the CPU module faceplate accepts an RJ-11 connector. The faceplate connector accommodates the standard RJ-11 interface; however, due to differences among manufacturers of connectors, be sure to check your cable and connector to determine what type you have. DB9 connectors are available with different wire-coloring schemes. If you are using the serial port of a personal computer (PC) or workstation as the console, use a standard DB9 female connector with an attached RJ-11 connector. Be sure to use the correct type of cable to ensure proper operation. Table 1 and Table 2 describe the pin configuration for DB9 connectors with two different wire coloring schemes.

Table 1. Pin Descriptions for the Serial Interface DB9 Connector with Black/Red/Green Wires

Pin	Description
2	Black = RX (receive)
3	Red = TX (transmit)
5	Green = Ground

Table 2. Pin Descriptions for the Serial Interface DB9 Connector with Yellow/Green/Red Wires

Pin	Description
2	Yellow = RX (receive)
3	Green = TX (transmit)
5	Red = Ground

The SUN Microsystems workstation (as well as other types of workstations) can also be used to connect to the console serial port. If you are using the serial port of a SUN workstation as the console, use a DB25 male connector. Table 3 describes the pin configuration for the DB25 connector.

Table 3. Pin Descriptions for the Serial Interface DB25 Connector

Pin	Description
2	Red = TX (transmit)
3	Black = RX (receive)
7	Green = Ground

Ethernet 10Base-T Interface

The CPU module faceplate also accommodates the Ethernet interface using standard RJ-45 pin assignments. Figure 19 shows the pin locations for the RJ-45 connector for the 10Base-T connector on the faceplates.

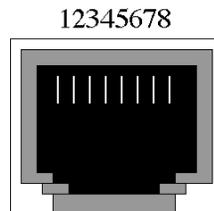


Figure 19. Pin Locations on the RJ-45 Connector

Table 4 describes the pin configuration for the RJ-45 faceplate connector.

Table 4. Pin Descriptions for the RJ-45 Connector for the CPU Ethernet Interface

Pin	Description
1	TD+ (transmit to UTP wire)
2	TD- (transmit to UTP wire)
3	RD+ (receive from UTP wire)

Table 4. Pin Descriptions for the RJ-45 Connector for the CPU Ethernet Interface

Pin	Description
4	Not used by 10Base-T
5	Not used by 10Base-T
6	RD– (receive from UTP wire)
7	Not used by 10Base-T
8	Not used by 10Base-T

Configuration for the Stratum 3–4 Connector

The composite clock signal for the PSAX 2300 Stratum 3–4 module is a 64-Kbps bipolar signal with an 8-Kbps bipolar violation signal. Figure 20 is a diagram for general reference only. Detailed parameters for the composite clock signal are described in Bellcore document TA-TSY-000378. ITU G.703.

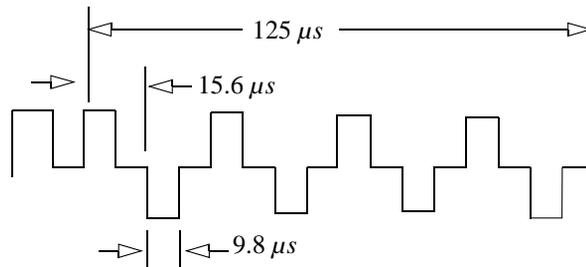


Figure 20. Composite Clock Signal

The composite clock signal is a balanced signal, which is transmitted over a shielded twisted pair cable. The cable shield is grounded at the composite clock source.

Chapter A Pin Configurations

Configuration for the Stratum 3-4 Connector

Table 5 describes the pin configuration for the faceplate connector on the Stratum 3-4 module.

Table 5. Pin Descriptions for the RJ-45 Connector on the Stratum 3-4 Module

Pin	Description
1	IN (ring)
2	IN (tip)
3	NC (no connect)
4	DC (do not connect)
5	DC (do not connect)
6	FGND (frame ground)
7	NC (no connect)
8	NC (no connect)

B European Community Declarations of Conformity



Overview of This Appendix

This appendix contains the European Community (EC) Declarations of Conformity for Electromagnetic Compatibility Directives, as applicable to the PSAX 2300 Access Concentrator.

EC DECLARATION OF CONFORMITY

We,

Lucent Technologies
Access Technology Division
8301 Professional Place
Landover, Maryland 20785
USA

declare, under our sole responsibility, that the product:

Lucent Technologies PSAX 2300 ATM Access Concentrator, consisting of the following model numbers:

23S00, 20A10, 20A11, 20A12, 20A13, 20N07, 20N20, 20N22, 20N27, 20N28, 20N29, 20N34, 20N40, 20N41, 20N56, 20N62, 20N63, 20N64, 20N65, 20N92, 20N93, 23A63, 23A64, 23A67, 23N05, 23N11, 23N27, 23N28, 23N66

to which this declaration relates, is in conformity with the following standard(s) or other normative documents

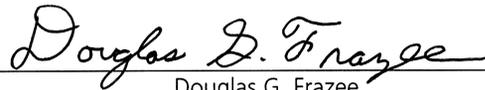
EN 300 386-2:1997
EN 55024:1998
EN 55022:1998

in accordance with the provisions of the **Electromagnetic Compatibility Directive (EMC) 89/336/EEC**.

I, the undersigned, hereby declare that the equipment specified above conforms to the listed directives and standards.

Place of Issue: Landover, Maryland; USA

Date: June 26, 2000



Douglas G. Frazee
Regulatory Compliance Manager
Lucent Technologies
Access Technology Division
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2300M0A6301X1G

Supplementary Information

Manufacturer: Solectron Massachusetts Corporation
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P.O. Box 5147
Westborough, Massachusetts 01581-5147

Test Report: Global Product Compliance Laboratory Report TR 99-106



EC DECLARATION OF CONFORMITY

We,

Lucent Technologies
Access Technology Division
8301 Professional Place
Landover, Maryland 20785
USA

declare, under our sole responsibility, that the product:

Lucent Technologies PSAX 2300 ATM Access Concentrator, consisting of the following model numbers:

23S00, 20A10, 20A11, 20A12, 20A13, 20N07, 20N20, 20N22, 20N27, 20N28, 20N29, 20N34, 20N40, 20N41, 20N56, 20N62, 20N63, 20N64, 20N65, 20N92, 20N93, 23A63, 23A64, 23A67, 23N05, 23N11, 23N27, 23N28, 23N66

to which this declaration relates, is in conformity with the following standard(s) or other normative documents

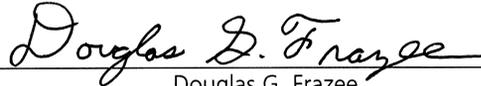
EN 60950:1992 +A1:1993+A2:1993+A3:1995+A4:1997+A11:1997

in accordance with the provisions of the **Low Voltage Directive 73/23/EEC**.

I, the undersigned, hereby declare that the equipment specified above conforms to the listed directives and standards.

Place of Issue: Landover, Maryland; USA

Date: June 26, 2000



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2300M0A6301X1H

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Test Report: UL CB Scheme Report 00ME11191-020900

CB Certificate: US/4127/UL



EC DECLARATION OF CONFORMITY

We,

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Access Technology Division
8301 Professional Place
Landover, Maryland 20785
USA

declare, under our sole responsibility, that the product:

Lucent Technologies PSAX 2300 Stratum 3-4 Module; model 23N05

to which this declaration relates, is in conformity with the following standard(s) or other normative documents

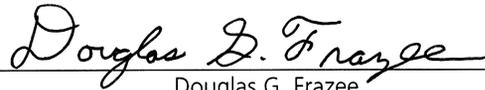
EN 300 386-2:1997
EN 55022:1994 +A1:1995+A2:1997

in accordance with the provisions of the **Electromagnetic Compatibility (EMC) Directive 89/336/EEC**.

I, the undersigned, hereby declare that the equipment specified above conforms to the listed directives and standards.

Place of Issue: Landover, Maryland; USA

Date: June 26, 2000



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539M0A6301X1M

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Test Report: Global Product Compliance Laboratory Report TR 99-106



EC DECLARATION OF CONFORMITY

We,

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Access Technology Division
8301 Professional Place
Landover, Maryland 20785
USA

declare, under our sole responsibility, that the product:

Lucent Technologies PSAX 2300 -48VDC Power Supply, model 23N11

to which this declaration relates, is in conformity with the following standard(s) or other normative documents

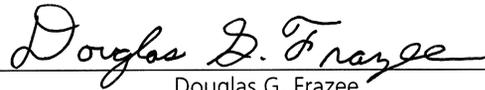
EN 300 386-2:1997
EN 55022:1994 +A1:1995+A2:1997

in accordance with the provisions of the **Electromagnetic Compatibility (EMC) Directive 89/336/EEC**.

I, the undersigned, hereby declare that the equipment specified above conforms to the listed directives and standards.

Place of Issue: Landover, Maryland; USA

Date: June 26, 2000



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542M0A6301X1R

Supplementary Information

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Test Report: Global Product Compliance Laboratory Report TR 99-106



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We,

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Access Technology Division
8301 Professional Place
Landover, Maryland 20785
USA

declare, under our sole responsibility, that the product:

Lucent Technologies PSAX 2300 -48VDC Power Supply, model 23N11

to which this declaration relates, is in conformity with the following standard(s) or other normative documents

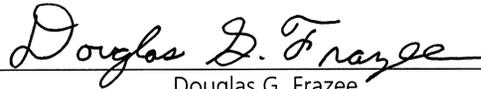
EN 60950:1992 +A1:1993+A2:1993+A3:1995+A4:1997+A11:1997

in accordance with the provisions of the **Low Voltage Directive 73/23/EEC**.

I, the undersigned, hereby declare that the equipment specified above conforms to the listed directives and standards.

Place of Issue: Landover, Maryland; USA

Date: June 26, 2000



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Test Report: UL CB Scheme Report 00ME11191-020900

CB Certificate: US/4127/UL



EC DECLARATION OF CONFORMITY

We,

Lucent Technologies
Access Technology Division
8301 Professional Place
Landover, Maryland 20785
USA

declare, under our sole responsibility, that the product:

Lucent Technologies PSAX 2300 / PSAX 1250 CPU Module; consisting of the following model numbers:

20N20, 20P20, 20P21, 20P22, 20P23

to which this declaration relates, is in conformity with the following standard(s) or other normative documents

EN 300 386-2:1997

EN 55022:1994 +A1:1995+A2:1997

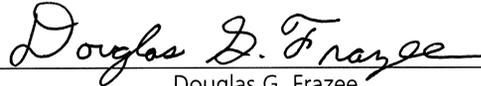
EN 50082-1:1992

in accordance with the provisions of the **Electromagnetic Compatibility (EMC) Directive 89/336/EEC.**

I, the undersigned, hereby declare that the equipment specified above conforms to the listed directives and standards.

Place of Issue: Landover, Maryland; USA

Date: June 26, 2000



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502M0A6301X1I

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Test Report: MET Laboratories Reports EMI1067A, EMI1112A, EMI1250B, EMI9290A
Global Product Compliance Laboratory Report TR 99-6



EC DECLARATION OF CONFORMITY

We,

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Access Technology Division
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Landover, Maryland 20785
USA

declare, under our sole responsibility, that the product:

Lucent Technologies CPU Module 32MB Memory Upgrade, model 20A10
Lucent Technologies CPU Module 64MB Memory Upgrade, model 20A12

to which this declaration relates, is in conformity with the following standard(s) or other normative documents

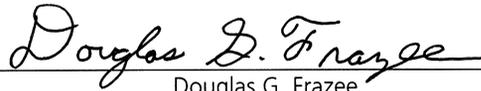
EN 300 386-2:1997
EN 55022:1994 +A1:1995+A2:1997
EN 50082-1:1992

in accordance with the provisions of the **Electromagnetic Compatibility (EMC) Directive 89/336/EEC**.

I, the undersigned, hereby declare that the equipment specified above conforms to the listed directives and standards.

Place of Issue: Landover, Maryland; USA

Date: June 26, 2000



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502M0A6301X1J

Supplementary Information

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Test Report: MET Laboratories Reports EMI1067A, EMI1112A, EMI1250B, EMI9290A
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