



PacketStar™
AC 60 Access Concentrator
Installation and Operation Guide
A PacketStar™ PSAX Central Office Product

Issue 1, October 2000

System Software Release 6.3.0

AQueView™ EMS Software Release 4.4

Doc. No.: 255-700-024
COMCODE: 300303013



Copyright © 2000 by Lucent Technologies. All rights reserved.

For trademark, regulatory compliance, and related legal information,
see the "Copyright and Legal Notices" section.

Copyright and Legal Notices



Copyright

Copyright © 2000 by Lucent Technologies. All rights reserved.

This material is protected by the copyright laws of the United States and other countries. It may not be reproduced, distributed, or altered in any fashion by any entity (either internal or external to Lucent Technologies), except in accordance with applicable agreements, contracts or licensing, without the express written consent of the InterNetworking Systems, Access Technology organization and the business management owner of the material.

This document was prepared by the Information Design and Development department of Lucent Technologies, InterNetworking Systems, Access Technology group. Offices are located in Landover, Maryland, U.S.A.

Trademarks

AQueView, *PacketStar*, *Lucent*, *Lucent Technologies*, and the Lucent Technologies logo are trademarks of Lucent Technologies. Other product and brand names mentioned in this guide are trademarks or registered trademarks of their respective owners.

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 <Var.MinimumClearanceVariable> 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 <Var.MinimumClearanceVariable> 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 AC 60 chassis with a module installed.

Regulatory Standards Compliance

The Access Concentrator 60 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)
- EN 55022:1994 Class A (CISPR22:1993)
- EN 50082-1:1992

CE Marking

CE marking of the Lucent Technologies AC 60 ATM Access Concentrator consisting of the following model numbers:

50S02, 50S48, 20A13, 20N07, 20N16, 20N22, 20N27, 20N28, 20N29, 20N34, 20N40, 20N41, 20N56, 20N62, 20N63, 20N64, 20N65, 20N92, 20N93, 23N27, 23N66

Copyright and Legal Notices

Regulatory Statements

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

- EN 55022:1994 Class A
- EN 50082-1:1992
- 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 Access Concentrator 60 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 AC 60 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 AC 60 system has digital service interface capabilities using RJ-48C and RJ-48H connectors. The facility interface codes with which the AC 60 system complies for digital services are as follows: 04DU9-BN, 04DU9-DN, 04DU9-1KN, and 04DU9-1SN. The AC 60 system has loop start interface capabilities using an RJ-11C connector. The facility interface code with which the AC 60 system complies for service is 02LS2. The service order codes for the AC 60 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 AC 60 system is 0.7B.
4. If the AC 60 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 AC 60 system, or need repairs or warranty information, please refer to the Limited Hardware Warranty card that accompanied your AC 60 product shipment for instructions on obtaining technical support in your area.

If the AC 60 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.

This equipment cannot be used on public coin telephone service provided by the telephone company. Connection to party line service is subject to state

Copyright and Legal Notices

Regulatory Statements

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 AC 60 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.

Safety Information



When installing and operating the Access Concentrator 60, follow the safety guidelines provided below to help prevent serious injury and/or damage to the AC 60 equipment. Please read all warnings and instructions supplied before beginning installation or configuration of the AC 60 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 AC 60 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 AC 60 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 AC 60 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:

When removing an alternating current (AC) power cord from an AC 60 chassis running on AC power, remove the power cord from the connector by grasping and pulling the plug, not the power cord.

⚠ DANGER:

Ensure that the voltage and frequency of the facility power source match the requirements of the AC 60 Power Supply unit. The AC 60 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:

Shock hazard! Do not personally perform any maintenance on this equipment. This equipment does not contain any user serviceable parts. Maintenance is to be performed only by qualified personnel.

⚠ 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 AC 60 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:

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

⚠ 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.

⚠ WARNING:

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

⚠ WARNING:

This product relies on the building's installation of short-circuit (over-current) protection. Ensure that a fuse or circuit breaker no larger than 120 V ac, 15 A U.S. (240 V ac, 10 A international) is used on the phase conductors (all current-carrying conductors).

⚠ WARNING:

Once the AC 60 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 AC 60 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 AC 60 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 <Var.MinimumClearanceVariable> 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.

Safety Information

▲ CAUTION:

Install or remove modules one at a time. Doing this aids in preventing the AC 60 system from indicating any erroneous failure messages, and allows the AC 60 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 AC 60 system and your equipment must use a common chassis ground connection to avoid ground current loops, which could affect voice quality.

Contents



Copyright and Legal Notices	iii
Copyright	iii
Trademarks	iii
Warranty Information	iii
Software and Hardware Limited Warranties	iii
Warranty Warnings	iv
Regulatory Standards Compliance	v
Safety Requirements	v
Electromagnetic Compatibility (EMC) and Physical Requirements	v
CE Marking	v
Regulatory Statements	vi
United States Federal Communications Commission (FCC) Statements	vi
Canadian Regulatory Statements	viii
Industry Canada Information	viii
Renseignements Industrie Canada	viii
International Regulatory Statements	ix
Safety Information	xi
Installation Checklist	Checklist-1
About This Guide	1
Purpose of This Guide	1
Audience for This Guide	1
What You Should Know	1
Related Reading	2
Lucent Technologies Information Products	2
Product Information Library	2
Printed Documents	2
Other Publications	4
Text Conventions	6
Text Types Used in This Document	6
Icons and Symbols	7
Technical Support	8
About Lucent Technologies	8

Contents

History	8
For More Information	8
About the <i>PacketStar</i> ™ PSAX Family	8
Comments on This Guide	11
Getting Started	13
Overview of This Section	13
Using the Installation Checklist	13
Before You Begin	13
Product Modification or Repair	13
AC 60 System Hardware Components	14
AC 60 System Hardware Specifications	14
AC 60 System Environmental Specifications	14
Facility Power Source Requirements	15
AC 60 CPU and Stratum Component Specifications	16
AC 60 Physical Interface Specifications	18
I/O and Server Modules Specifications	18
Electrostatic Discharge (ESD) Precautions	20
Grounding Wrist Straps	21
Floor Covering	21
Humidity	22
Clothing	22
Handling Chassis, Modules, and Components	22
Ventilation	22
Equipment Grounding	23
Tools and Materials Needed	23
Installing and Operating the AC 60 System	25
Before You Begin	25
Setting Up the Hardware	25
Table-Top Setup	26
Mounting the AC 60 Chassis in a Rack	26
Grounding the Chassis	27
Installing the I/O and the Server Modules	27
Connecting Your Network Cabling	28
Connecting the Console Workstation to the AC 60 System	28
Operating the AC 60 System	29
AC 60 Status Indicators	29
Starting Up the AC 60 System	30

Shutting Down the AC 60 System	31
Removing Modules From the Chassis	31
Shipping the AC 60 System	31
Appendix A: Pin Configurations	33
Overview of This Appendix	33
Configuration for the Power Supply Connector	33
AC Power Supply Connector	33
Configuration for the CPU Connectors	34
Console Serial Interface	34
Ethernet 10Base-T Interface	35
Configuration for the Stratum 3–4 Connector	35
Appendix B: European Community Declarations of Conformity	37
Overview of This Appendix	37
1	40

Contents

=====

Installation Checklist



This section provides an overview of the tasks you must complete to install the AC 60 system. Use the following installation checklist to help assure that your installation goes well. 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 AC 60 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 Warnings and Information" on page ix.	<input type="checkbox"/>
2. Remove plastic and foam packing material. Save the original carton (including cushioning foam material and module packaging) in which the AC 60 chassis was received. You can re-use this packaging in the future to safely ship the system to another location (See "Shipping the AC 60 System" on page 31).	<input type="checkbox"/>
3. Verify that your shipment is complete. <input type="checkbox"/> The following items are included in the AC 60 installation kit: <ul style="list-style-type: none">~ A pair of mounting brackets (secured to the chassis)~ 4 12/24 x 1/2" slotted screws for securing the chassis to a telco frame~ One RJ12 to RJ12 shielded cable (for configuring the chassis through the CONSOLE port)~ One RJ12 to DB25 adapter~ One RJ12 to DB9 adapter~ One ac power cord 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.	<input type="checkbox"/>

Installation Checklist

Procedure	Your Notes/ Comments
<p>~ The information products kit, which includes:</p> <ul style="list-style-type: none">• A printed installation guide• A printed user guide• The AC 60 Product Information Library CD-ROM• The PacketStar Modules Product Information Library CD-ROM• Printed release notes• Printed software upgrade instructions <p>~ A system software upgrade kit</p> <p>Note: A shielded RJ45 to RJ45, straight through cable is required for connections to the T1 port. The same type of cable is needed if you want to configure the unit through the Ethernet port. If you want to use either type of connection, you must supply your own cables.</p>	
<p>4. Select a location that:</p> <p>~ Accommodates the weight and size of the AC 60 system (See “AC 60 System Hardware Specifications” on page 14).</p> <p>~ Offers adequate ventilation and a controlled climate (See “AC 60 System Environmental Specifications” on page 14).</p> <p>~ Is conveniently located near electrical outlets or other power sources and the equipment it will serve</p>	<input type="checkbox"/>
<p>5. Ensure that you have the appropriate tools needed for installation (See “Tools and Materials Needed” on page 23 for a list of the items you will need).</p>	<input type="checkbox"/>
<p>6. Verify that the input power from your facility power source meets the specifications in “AC 60 Power Source Requirements” on page 15 for the type of power supply you will be using in your AC 60 system.</p>	<input type="checkbox"/>
<p>7. If you are installing multiple AC 60 systems, calculate the amount of electrical supply capacity needed to accommodate all equipment on each circuit (see “AC 60 System Hardware Specifications” on page 14).</p>	<input type="checkbox"/>
<p>8. Check the environmental conditions of your site (See “AC 60 System Environmental Specifications” on page 14).</p>	<input type="checkbox"/>

Procedure	Your Notes/ Comments
9. Obtain the tools you will need during installation (See "Tools and Materials Needed" on page 23 for a list of the tools you should have on hand).	<input type="checkbox"/>
Installing Hardware in the Telco Rack or Cabinet:	
1. Install the EMI filter kit(s) (in your power supply box) in the air deflector(s).	<input type="checkbox"/>
2. Install the AC 60 chassis into the telco rack (See "Mounting the AC 60 Chassis in a Rack" on page 26 for details).	<input type="checkbox"/>
3. Install the air deflector into the telco rack (See "Mounting the AC 60 Chassis in a Rack" on page 26 for details).	<input type="checkbox"/>
4. Ground the AC 60 chassis (See "Grounding the Chassis" on page 27 for details).	<input type="checkbox"/>
5. Insert the I/O modules into the chassis (See "Installing the I/O and the Server Modules" on page 27 for details).	<input type="checkbox"/>
<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>	
Making Connections to the Unit:	
1. Connect your network cabling to the unit (See "Connecting the Console Workstation to the AC 60 System" on page 28 for details).	<input type="checkbox"/>
2. Connect the computer you will use for system configuration and management to the AC 60 system.	<input type="checkbox"/>
Starting Up the AC 60 System:	
1. Apply power to the AC 60 system (See "Starting Up the AC 60 System" on page 30 for details).	<input type="checkbox"/>
2. Verify that the LED indicators on the equipment and I/O modules are reporting that all components are functioning properly (See "AC 60 Status Indicators" on page 29 for details).	<input type="checkbox"/>
3. Ensure that the connection between the AC 60 system and the computer is operational.	<input type="checkbox"/>



Additional Notes

Note: Use this page for additional notes about the process, results, and any problems associated with your installation of the AC 60 system.

Note:

About This Guide



Purpose of This Guide

The *PacketStar™ Access Concentrator 60 Installation and Operation Guide* provides information about the following:

- Observing appropriate safety, electrostatic discharge (ESD), and ventilation precautions in setting up and operating the Access Concentrator 60 (AC 60) system
- Setting up your hardware components in preparation for installation
- Installing your AC 60 chassis and related hardware
- Installing user-selected input/output (I/O) and server modules into the AC 60 chassis
- Starting up the AC 60 system
- Running system checkout tests on the AC 60 system
- Shutting down the AC 60 system
- Removing modules from the installed AC 60 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 AC 60 system hardware.

What You Should Know

Before you use this document or operate the AC 60 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.

About This Guide

Related Reading

Related Reading

Lucent Technologies Information Products

Product Information Library To install and use your AC 60, you will need to read the following publications, which are provided on your Lucent Technologies AC 60 Product Information Library CD-ROM.

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 1. PacketStar Release 6.3.0 Product Information Library (Printed Documents)

Document	Issue	COMCODE	Document Number
<i>AC 60 Installation and Operation Guide, Release 6.3</i>	Issue 1	300303005	255-700-056
<i>AC 60 User Guide, Release 6.3</i>	Issue 1	300303021	255-700-025
<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 2. 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
<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

About This Guide

Related Reading

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

Document	Issue	COMCODE	Document Number
<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
<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*
- 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*

About This Guide

Text Conventions

- ~ *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*

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
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 Access Concentrator 60 system equipment. Refer to the procedures within this Var.TypeofGuide-InstallationUserEtc> 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.

About This Guide

Technical Support

Technical Support

If you experience a problem with your AC 60 system, refer to the *Lucent Technologies InterNetworking Systems Global Warranty* card that accompanied your AC 60 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*TM 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 Family

Lucent's PacketStar PSAX family provides a complete range of multiservice access concentrators, as described in Table 3.

This manual applies to the AC 60 only. For details on installing, operating, or managing other PSAX equipment, see the appropriate guides for those chassis.

Table 3. PacketStar™ PSAX Product Family

Target Market	Device Name	Application/Description
Small Customer Premises	AC 60	<p>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.</p> <p>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.</p>
	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>

About This Guide

About the PacketStar PSAX Family

Table 3. 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>

Comments on This Guide

To comment on the *PacketStar™ Access Concentrator 60 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.

About This Guide

Comments on This Guide

Getting Started



Overview of This Section

This section provides a general description of the PacketStar™ Access Concentrator 60 hardware components, hardware and environmental specifications for the Access Concentrator 60, 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 AC 60 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 AC 60 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 AC 60 chassis. Do not attempt to repair or modify any failed I/O or server modules. Modifying or tampering with AC 60 components voids your warranty.

AC 60 System Hardware Components

The following hardware components make up the AC 60 system:

- Chassis—mounted in a standard 19-inch (48.26-cm) rack or a telco frame, or placed on a shelf or table
- Common equipment components—these are built into the chassis and are not removable by the user:
 - ~ Power Supply components:
 - Two alternating-current (AC) Power Supply component types are available: (1) 110 V ac, 5 A, 300 W (model 50S01); and (2) 220 V ac, 2.5 A, 300 W (model 50S02)
 - Direct-current (DC) Power Supply component (model 50S48):
 - ~ Stratum 3–4 component
 - ~ Central processing unit (CPU) component
- User-selected input/output (I/O) and server modules

A variety of I/O and server modules are available. See the *PacketStar™ Access Concentrator 60 User's Guide* for more information about the PacketStar I/O and server modules (see "Related Reading" on page 2).

AC 60 System Hardware Specifications

Table 4 describes the physical specifications for the hardware components that make up the AC 60 system.

Table 4. AC 60 Chassis Hardware Specifications

Slot configuration:	Two I/O and server modules
Height:	8.9 cm (3.5 in)
Width:	44.04 cm (17.34 in)
Depth:	33 cm (13 in)
Weight:	5.9 kg (13.1 lb)
Material:	Aluminum
Color:	Black
Cooling method:	Three fans and one filter kit on right side
Power source requirements:	Any power source input from 90 to 264 V ac power supply
Clock synchronization:	Built-in (factory-installed) Stratum 3–4 clocking

AC 60 System Environmental Specifications

Maintaining the proper temperature and humidity in the room where the AC 60 system is located helps control many static charge problems.

Maintaining proper room climate is especially important when heat is turned on during the winter months. To avoid damage to the AC 60 system, do not allow the humidity to increase to the level where water droplets would appear on surfaces. The temperature and relative humidity must be kept within the specified tolerance limits as shown in Table 5.

Table 5. Environmental Specifications for the AC 60 System

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

Facility Power Source Requirements

Three types of built-in Power Supply components are available for the AC 60 system:

- 110 V ac Power Supply
- 220 V ac Power Supply
- -48 V dc Power Supply



WARNING:

Be sure that you have adequate wiring capacity and fuse panel/circuit breaker capacity to accommodate all AC 60 systems and other equipment you plan to install. Insufficient capacity will cause fuses to fail or circuit breakers to trip.

Table 6 provides the facility power source requirements for the operation of one AC 60 system. Use these specifications for one chassis to calculate how much electrical supply capacity you would need for multiple systems.

Table 6. AC 60 Power Source Requirements

Specification	Description
AC power source for the 110 V ac Power Supply:	
Voltage range:	90 to 130 V ac at 50 to 60 Hz
Maximum current:	5 A
Maximum power:	300 W
Fuses	2 5mm x 20mm, 250 V, 2.5 A slow-blow

Getting Started

AC 60 CPU and Stratum Component Specifications

Table 6. AC 60 Power Source Requirements

Specification	Description
AC power source for the 220 V ac Power Supply:	
Voltage range:	180 to 250 V ac at 50 to 60 Hz
Maximum current:	2.5 A
Maximum power:	300 W
Fuses	2 5mm x 20mm, 250 V, 2.5 A slow-blow

Table 7 provides the environmental specifications for the AC 60 power supply.

Table 7. Environmental Specifications for the AC 60 Power Supply

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

AC 60 CPU and Stratum Component Specifications

This section details the specifications for the installed CPU and Stratum components for the AC 60 system.

The hardware specifications for the AC 60 CPU component are given in Table 8.

Table 8. AC 60 CPU Component Specifications

Specification	Description
Units per system:	1 factory installed component
Power consumption	18 W, average
Processing:	RISC microprocessor
Memory:	128 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:	Two indicators: <ul style="list-style-type: none">• ACTIVE—green• FAIL—red

The hardware specifications for the AC 60 Stratum 3–4 component are given in Table 9.

Table 9. AC 60 Stratum 3–4 Component Specifications

Specification	Description
Operating temperature:	0° to 50° C
Operating humidity:	Up to 95%, noncondensing
Storage temperature:	-40° to +70° Celsius (-40° to 158° Fahrenheit)
Units per system:	1 factory installed component
Synchronization source:	Internal or external
Accuracy:	Stratum 3 or 4, selectable
External clock input:	Standard ANSI or ITU 64 kbps composite clock
Connector:	One RJ12 connector on the faceplate
LED indicators:	Two indicators: <ul style="list-style-type: none"> • ACTIVE—green • FAIL—red

▲ 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.

▲ 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.

AC 60 Physical Interface Specifications

Table 10 describes the interface specifications of the AC 60 system.

Table 10. Physical Interface Specifications

ATM Standards	ATM Forum User-network Interface (UNI) (Versions 3.0, 3.1) ATM Forum Inter-switch Signaling Protocol (IISP) (Version 1.0) ATM Forum Integrated Local Management Interface (ILMI) (Version 4.0) ATM Forum Inverse multiplexing over ATM (IMA) (Versions 1.0, 1.1) ATM Forum Private Network-Network Interface (PNNI) (Versions 1.0)
WAN Interfaces	DS1, E1, DS3, E3, OC-3c, STM-1, DS1 IMA, E1 IMA, DS3 IMA
Narrowband Interfaces	Voice 2-Wire Office (Sink), Voice 2-Wire Station (Source)
LAN Interfaces	T1, E1, OC-3c, Ethernet, Serial (RS-232, EIA-449, EIA-530), Parallel
Management Interfaces	Ethernet (RJ-45), EIA-232 (RJ-11), Inband (IP over ATM) (RFC 1483)

I/O and Server Modules 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 11.

Table 11. 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	7 MB	4 MB	13 MB	High	13 W
Channelized STS-1e T1	24 MB	7 MB	4 MB	13 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

Table 11. 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)
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	7 MB	4 MB	13 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	7 MB	4 MB	13 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	7 MB	4 MB	13 MB	High	14.5 W
Multi-Serial	8–64 MB	3 MB	1 MB	Total minus 4 MB	Low	15 W
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

Getting Started

Electrostatic Discharge (ESD) Precautions

Table 11. 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)
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.

Electrostatic Discharge (ESD) Precautions

The room in which the AC 60 will be located must have built-in precautions to provide protection from ESD damage to electronic components. To protect your AC 60 system, observe the precautions given below.

Grounding Wrist Straps

Using a grounding wrist strap (see Figure 1) is recommended when installing and operating the AC 60.

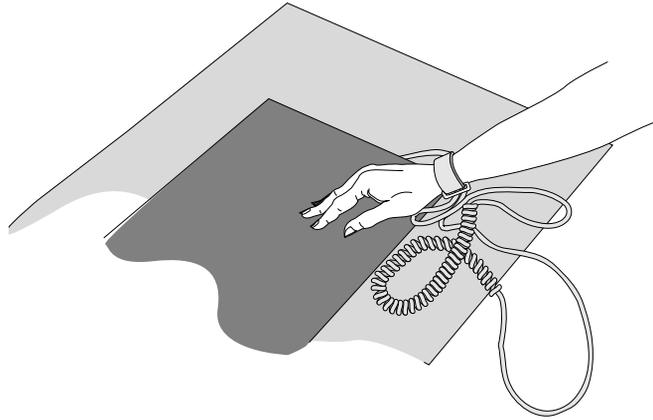


Figure 1. Grounding Wrist Strap

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.

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

Getting Started

Ventilation

constant attention to carpeting maintenance is acceptable, but time-consuming.

Humidity

Maintaining the proper humidity in the room where the AC 60 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 AC 60 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 AC 60 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 AC 60 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 AC 60 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 AC 60 is properly grounded to a common electrical ground. The grounding of the AC 60 unit is provided through the three-wire power cord that connects to the Power Supply modules and grounding point on the chassis. The chassis grounding point must be connected to a common electrical ground to provide proper protection. See "Grounding the Chassis" on page 25 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)
- Wire (8-gauge) for grounding the AC 60 chassis
- Metal file (for grounding the AC 60 chassis to the telco frame)
- Wax string (optional for cable management)

Getting Started

Tools and Materials Needed

.....

Installing and Operating the AC 60 System



Before You Begin

Before you start setting up the AC 60 system, be sure to do the following tasks:

- 1 Select a location that:
 - ~ Accommodates the weight and size of the AC 60 system
 - ~ Offers adequate ventilation and a controlled climate
 - ~ Is conveniently located near electrical outlets or other power sources and the equipment it will serve
 - 2 Verify that the input power from your facility power source meets the specifications in Table 6 on page 15 for the type of power supply you have in your system.
 - 3 Check the environmental conditions of your site (see "AC 60 System Environmental Specifications" on page 14).
 - 4 Remove all components from their packaging. Save the original carton (including cushioning foam material and module packaging) in which the AC 60 chassis was received. This allows you to safely ship the system to another location in the future (see "Shipping the AC 60 System" on page 1).
- 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.
- 5 Verify that the shipment is complete.
 - 6 Obtain the tools you will need during installation (see "Tools and Materials Needed" on page 23).

Setting Up the Hardware

The AC 60 systems are shipped ready to be set up for one of the following types of installation:

- The AC 60 chassis can be placed on a flat hard surface (see "Table-Top Setup" on page 1).
- The AC 60 chassis can be mounted in a standard 48.26-centimeter (19-inch) equipment rack cabinet or a 48.26-centimeter (19-inch) telco frame.

Installing and Operating the AC 60 System

Setting Up the Hardware

Table-Top Setup

For satisfactory operation of these systems and to prevent any damage when you set them up for table-top installation, use the following guidelines:

- The supporting hard surface, such as a table top or a wide shelf, is sturdy enough to support the weight and size of the unit.
- The location of the supporting hard surface is out of the way of personnel so that no one will bump into the chassis or the cabling on the front.
- The AC 60 unit must be at least 10.16 centimeters (4 inches) from any objects on either side of it.

▲ **WARNING:**

You must maintain the minimum 10.16 centimeters (4 inches) of clearance behind 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.

- 1 Place the AC 60 system in your chosen location.

Note: If you have more than one unit, you can stack them with no more than three in the stack, unless you are operating with cooling from forced air conditioning. Consult the factory about custom rack installations.

- 2 You are ready to install an I/O or server module (see "Installing the I/O and the Server Modules" on page 1).

Mounting the AC 60 Chassis in a Rack

The AC 60 enclosed chassis has mounting angle brackets already installed for flush-front mounting (see Figure ?).

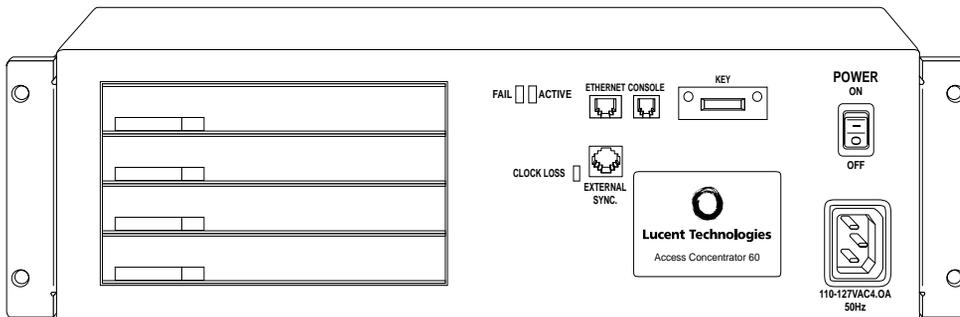


Figure 2. AC 60 Chassis (with Brackets)

▲ **DANGER:**

When fully loaded with four modules, the AC 60 chassis weighs 7.35 kg (16.2 lb). Lifting or holding such a load while trying to fasten it to a rack

can be difficult, 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.

Perform the following steps to mount the AC 60 chassis to a rack or frame:

- 1 Place the chassis in the desired position in the rack cabinet or the frame.
- 2 Secure the chassis to the rack cabinet or the frame with the screws provided in the installation kit.

Grounding the Chassis

Be sure that the AC 60 is properly grounded to a common electrical ground. The grounding of the AC 60 chassis is provided through the three-wire power cord that connects to the grounding points on the chassis. The chassis grounding point must be connected to a common electrical ground to provide proper protection.

Note: The grounding procedure should be done by a technician or other technical personnel in your chosen location.

If you are installing more than one AC 60 chassis in a rack cabinet or a frame, be sure that the clearance above and below the chassis is at least 5.08 centimeters (2 inches). Be sure that the clearance behind the rack is at least 10.16 centimeters (4 inches).

Installing the I/O and the Server Modules

WARNING:

Electrostatic discharge can severely damage sensitive electronic circuits. Before handling any electronic hardware, be sure to wear a grounding wrist strap or other static-dissipating device. Be sure to cover all empty slots with blank faceplates to maintain optimum electromagnetic interference (EMI) shielding of the chassis.

The AC 60 system is designed to accommodate two user-selectable input/output (I/O) or server modules. Do the following to install a module into an open slot:

- 1 Slide the module horizontally into the slot, with the ejector handle on the left side.
- 2 Firmly press the latch on the module faceplate and verify that the module is secure in its slot.

Use the following steps if you are not installing a module into an open slot:

- 1 Cover the slot by inserting a blank faceplate horizontally into the slot, with the ejector handle on the left side.
- 2 Firmly press the latch on the blank faceplate and verify that the blank faceplate is secure in its slot.
- 3 Connect the RJ11 cable supplied with the installation kit to the connector labeled CONSOLE.

Installing and Operating the AC 60 System

Setting Up the Hardware

After you install the I/O or server modules, you must configure the module. See the appropriate *PacketStar™* Module Guide for more information on configuring I/O and server modules.

Connecting Your Network Cabling

Once all modules are fully installed in the AC 60 chassis, use the steps in the following procedure to connect your network cabling to the module and chassis interface connectors.

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 chassis 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).

Connecting the Console Workstation to the AC 60 System

You can connect your AC 60 system to a console workstation in one of two ways:

- Connect the AC 60 system directly to a personal computer workstation by using the serial interface cable supplied in the installation kit.
- Connect the AC 60 system to an Ethernet device by using an Ethernet cable (user-supplied).

To install the serial interface cable for connecting the AC 60 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 AC 60 chassis faceplate, and the other RJ11 connector into the RJ11-to-DB9 adaptor .

End

To install an Ethernet cable for connecting the AC 60 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 AC 60 chassis faceplate.
- 2 Insert the other RJ45 connector into the desired Ethernet device (such as a hub).

End

Operating the AC 60 System

Before starting up your system, be sure you have done the following:

- Installed user-selected I/O or server modules in the open slots or covered open slots with blank faceplates, or both.
- Verified that user-selected I/O or server modules are properly seated in the chassis
- Verified that your network cables are correctly connected between the AC 60 chassis and your other network devices
- Verified that your CPU and modules have the latest software and firmware.

AC 60 Status Indicators

The AC 60 chassis has three types of LED indicators, as shown in Figure 3.

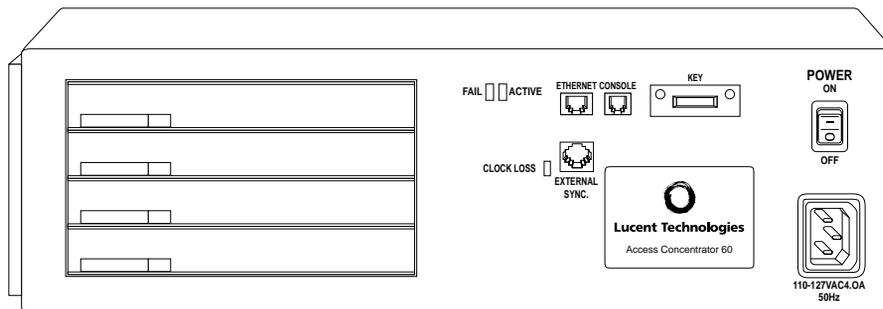


Figure 3. AC 60 Chassis

Installing and Operating the AC 60 System

Operating the AC 60 System

The status indicators for the AC 60 are described in Table 2.

Table 12. AC 60 Chassis Status Indicators

Color	Status	Description
Red	FAIL	Indicates that the power supply, the stratum, or the CPU component is not functioning.
Green	ACTIVE	Indicates that the power supply, the stratum, and the CPU components are functioning properly.
Yellow	CLK LOS (Clock Loss of Signal)	Indicates a loss of signal from the external composite clock synchronization source. Note: This LED indicator is operational only when the synchronization source CompositeClock was selected on the Stratum Configuration screen. This LED is not operational when synchronization source Freerun or LineTiming was selected.

Starting Up the AC 60 System

Follow these steps to apply power to the AC 60 system and turn it on:

- 1 Verify that the input power from the power source meets the specifications in Table 6 on page 15 for the type of power supply you have installed in your chassis.
- 2 Make sure the POWER toggle switch, located on the top right corner of the chassis faceplate, is set to the OFF position.
- 3 Insert the power cord socket firmly onto the power connector on the bottom right of the chassis faceplate, making sure the socket is fully seated on the pins of the connector.
- 4 Insert the standard male plug at the other end of the power cord into the AC power source.

Press the POWER switch to the ON position.

The cooling fans start running, and the AC 60 system takes about 20 seconds to perform self-check and initialization functions.
- 5 After about 30 seconds, check to see whether the green LED indicator labeled ACTIVE on the CPU is illuminated. If the red LED indicator labeled FAIL is illuminated, the CPU, the power supply, or the Stratum 3–4 clock is not functioning.

Note: If your AC 60 system does not start up correctly, see "Technical Support" on page 8.

Shutting Down the AC 60 System

Follow these steps to turn off the AC 60 system and remove the power:

- 1 Press the power toggle switch to the OFF position.



CAUTION:

When removing the power cord from the AC 60 chassis, pull on the plug, not on the cord.

- 2 Pull the power cord plug out of the facility power source receptacle.
- 3 Firmly grasp the power cord socket inserted in the faceplate of the AC 60 chassis, and using steady pressure, pull out the socket connector.

Removing Modules From the Chassis

You can remove the user-selectable I/O or server modules from the AC 60 chassis with the system running. The design of the AC 60 system supports live (that is, power applied to the system) insertion and removal of the modules without disrupting service on the other modules in the system.

- 1 Pull the latch on the module faceplate toward you until it releases to the open position.
- 2 Slide the module out of the chassis.
- 3 Put the module in an ESD-protective bag, and close the bag with adhesive tape.



DANGER:

To avoid the risk of electric shock, do not touch any component inside the chassis while power is applied.

- 4 Install a blank faceplate over the empty slot or install a different module in the slot.

Shipping the AC 60 System

At some point, you might need to ship the AC 60 system to another location. Use the following procedure to prepare the system for shipment:

- 1 Press the power switch to the OFF position (see "Shutting Down the AC 60 System" on page 1).
- 2 If you installed I/O or server modules into the chassis, remove them (see "Removing Modules From the Chassis" on page 1).
 - ~ Place each module in an ESD-protective bag (one module per bag).
 - ~ Seal each ESD bag with tape.
 - ~ Place the ESD bags into a sturdy carton with foam packing material. (Use the original packaging if you saved it.)

Installing and Operating the AC 60 System

Shipping the AC 60 System

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 AC 60 chassis with a module installed.

- 3 If you have a rack-mounted chassis, remove the mounting screws from the brackets, and remove the chassis from the rack.
- 4 Place the AC 60 chassis in a sturdy carton. Use the original packaging if you saved it. Otherwise, use foam packing material to cushion the equipment.
- 5 Secure the boxes with heavy-duty packaging tape.

A Pin Configurations



Overview of This Appendix

This appendix describes the pinout configurations for the connectors on the AC 60 common equipment components. Use the following information to connect correctly configured cables to the AC 60 system.

Configuration for the Power Supply Connector

AC Power Supply Connector

The configuration of the connector pins for the 110 V ac and the 220 V ac Power Supply components on the AC 60 chassis faceplate is shown in Figure 1.

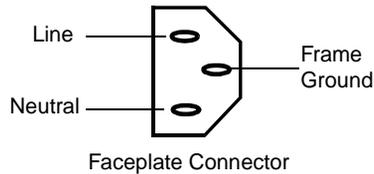


Figure 1. Pin Configuration for the Connector on the 110 V ac and the 220 V ac Power Supply Components

Table 1 describes the pin configuration for the connector on the 110 V ac and the 220 V ac Power Supply components.

Table 1. Pin Descriptions for the Connector on the 110 V ac and the 220 V ac Power Supply Components

Pin	Description
Line	Accepts the appropriate phased voltage.
Frame-Ground	Provides the frame ground for the AC 60 chassis. A 2 K ohm resistance separates the frame ground and the logical ground for all circuits in the AC 60 chassis, and on the I/O and server modules.
Neutral	In conjunction with the line pin, provides the reference voltage.

Pin Configurations

Configuration for the CPU Connectors

Configuration for the CPU Connectors

Two different interfaces are available for direct access to the CPU component. You can use the console serial interface or the Ethernet interface to connect to the terminal emulator for configuring and managing the AC 60 system.

Console Serial Interface

The serial port console interface of the AC 60 chassis 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 A-1 and Table A-2 describe the pin configuration for DB9 connectors with two different wire coloring schemes.

Table A-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 A-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 A-3 describes the pin configuration for the DB25 connector.

Table A-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 AC 60 chassis faceplate also accommodates the Ethernet interface using standard RJ-45 pin assignments. Figure A-1 shows the pin locations for the RJ-45 connector for the 10Base-T connector on the faceplates.

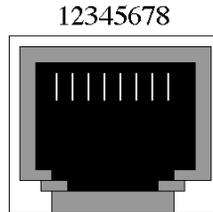


Figure A-1. Pin Locations on the RJ-45 Connector

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

Table A-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)
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 Stratum 3–4 component is a 64-Kbps bipolar signal with an 8-Kbps bipolar violation signal. Figure A-2 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.

Pin Configurations

Configuration for the Stratum 3-4 Connector

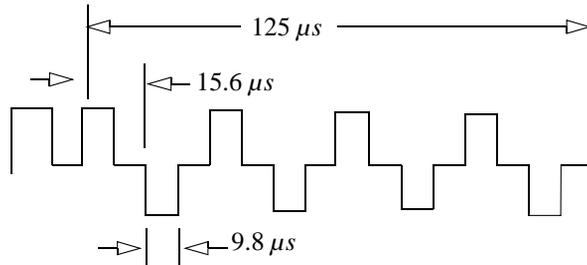


Figure A-2. Composite Clock Signal

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.

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

Table A-5. Pin Descriptions for the RJ-11 Connector on the Stratum 3-4 Component

Pin	Description
1	Not used
2	Not used
3	RX
4	RX
5	Not used
6	Not used

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 Access Concentrator 60.

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 AC60 ATM Access Concentrator, consisting of the following model numbers:

50S02, 50S48, 20A10, 20A11, 20A12, 20A13, 20N07, 20N16, 20N22, 20N27, 20N28, 20N29, 20N34, 20N40, 20N41, 20N56, 20N62, 20N63, 20N64, 20N65, 20N92, 20N93, 23A63, 23A64, 23A67, 23N27, 23N28, 23N66

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

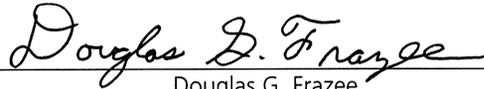
EN 55022:1994 +A1:1995+A2:1997
EN 50082-1:1992

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



Douglas G. Frazee
Regulatory Compliance Manager
Lucent Technologies
Access Technology Division
Tel: +01 301 809 4415

60M0A6301X1A

Supplementary Information

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

Test Report: MET Report EMI1190A
MET Report EMI1096A



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 AC60 ATM Access Concentrator, consisting of the following model numbers:

50S02, 50S48, 20A10, 20A11, 20A12, 20A13, 20N07, 20N16, 20N22, 20N27, 20N28, 20N29, 20N34, 20N40, 20N41, 20N56, 20N62, 20N63, 20N64, 20N65, 20N92, 20N93, 23A63, 23A64, 23A67, 23N27, 23N28, 23N66

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

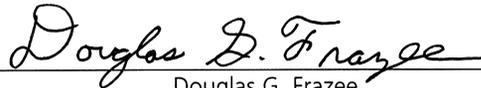
EN 60950:1992+A1:1993+A2:1993+A3:1995+A4:1997+A11:1997

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



Douglas G. Frazee
Regulatory Compliance Manager
Lucent Technologies
Access Technology Division
Tel: +01 301 809 4415

60M0A6301X1B

Supplementary Information

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

Test Report: TUV Rheinland CB-Scheme Report G9971133

CB Certificate: US-TUVR-0516

GS Certificate: S 9979066



Copyright © 2000 Lucent Technologies
All rights reserved.
Printed in the USA.
Part No.: 60M2A6301C1

Printed on paper with 100%
total recycled content.
Please recycle.



Lucent Technologies
Bell Labs Innovations

