PacketStar®
PSAX Patch Panels for PSAX Multiservice Media Gateways
Installation Guide

Issue 3, September 2002
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Legal Notices, Safety, and Regulatory Information

Copyright

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This document was prepared by the Information Design and Development Team of Lucent Technologies, PacketStar PSAX products. Offices are located in Landover, Maryland, USA.

Trademarks

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Notices

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Warranty Information

Hardware Limited Warranty

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

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

Regulatory Standards Compliance

The PacketStar PSAX Patch Panels, models 23A63 (48-port), 23A64 (24-port), and 23A67 (12-port), are compliant with the listed safety and electromagnetic compatibility (EMC) standards. Applicable statements appear in the next subsection.

Safety Requirements

- UL 1950, Third Edition (USA), for models 23A63 and 23A64
- CSA 22.2 No. 950, Third Edition (Canada), for models 23A63 and 23A64
- AS/NZS 3260:1993+S1:1996 (Australia/New Zealand)
- ACA TS 001:1997 (Australia)

Electromagnetic Compatibility (EMC) Requirements

- FCC Part 15 Class A (USA), for models 23A63 and 23A64
- EN-55022:1998 Class A (Europe)
- EN-55024:1998 (Europe)
- EN 300 386-2:1997 Class A (Europe)
- VCCI Class A (Japan)
- CISPR 22:1997 Class A (International)
- CISPR 24:1997 (International)

Regulatory Statements

USA Regulatory Statements

FCC 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.

Underwriters Laboratories, UL 1950

This accessory is Listed only when connected to the following PacketStar® PSAX Multiservice Media Gateway modules, installed in UL Listed PacketStar® PSAX Multiservice Media Gateways:

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>23N33</td>
<td>12-Port Medium-Density DS1 IMA</td>
</tr>
<tr>
<td>23N64</td>
<td>12-Port Medium-Density DS1 Multiservice</td>
</tr>
<tr>
<td>24N64</td>
<td>12-Port Medium-Density DS1/E1/DS0A CES</td>
</tr>
</tbody>
</table>

Canadian Regulatory Statement

ICES-003 This Class A digital apparatus complies with Canadian ICES-003.

NMB-003 Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

European Union Regulatory Statement

CE-Marking Hereby, Lucent Technologies declares that the PacketStar PSAX 1000 (-48 V dc and 220 V ac), PSAX 1250 (-48 V dc and 220 V ac), PSAX 2300, and PSAX 4500 Multiservice Media Gateways are in compliance with the essential requirements and other relevant provisions of the following Council Directives:

- Low Voltage 72/23/EEC
- Electromagnetic Compatibility (EMC) 89/336/EEC
- Radio Equipment and Telecommunications Terminal Equipment 1999/5/EC
The Lucent PacketStar® PSAX Multiservice Media Gateways deployed in the European Economic Area (EEA) are intended for connection to E1, E3, STM-1, and STM-4c networks. The EC Declarations of Conformity may be viewed or printed at the following public-access Internet site:
http://www.lucent.com/ins/doclibrary

**EU-regulativer**

**CE-mærkning**

Lucent Technologies erklærer hermed at PacketStar® PSAX 1000 (-48 V dc og 220 v vekselstrøm), PSAX 1250 (-48 V dc og 220 v vekselstrøm), PSAX 2300, and PSAX 4500 Multiservice Media Gateways overholder kravene i følgende EU-direktiver:

- Lavspændingsdirektivet 72/23/EEC
- EMC-direktivet 89/336/EEC
- Direktivet om radio og teleterminaludstyr 1999/5/EC

Lucent PacketStar® PSAX Multiservice Media Gateways, anvendt i EØS (Europæiske Økonomiske Samarbejde) skal forbides med E1, E3 STM-1 og STM-4c netværk. EU-overensstemmelseserklæringen er at finde på følgende internetside hvorfra den også kan udskrives:
http://www.lucent.com/ins/doclibrary

**Behördliche Standard-CE-Kennzeichnung für die Europäische Gemeinschaft**

**CE-Markierung**

Hiermit erklärt Lucent Technologies, dass die PacketStar® PSAX 1000 (-48 V DC und 220 V~), PSAX 1250 (-48 V DC und 220 V~), PSAX 2300, und PSAX 4500 Multiservice Media Gateways die notwendigen Anforderungen und anderen relevanten Vorschriften der folgenden Council-Direktiven einhalten:

- Niederspannungsrichtlinie 72/23/EEC
- EMV-Direktive 89/336/EEC
- Funkgeräte- und Funkverkehr-Endeinrichtungen 1999/5/EC

Die Lucent PacketStar® PSAX Multiservice Media Gateways, die in der Europäischen Gemeinschaft im Einsatz stehen, dienen zum Anschluss an folgende Netztypen: E1, E3, STM-1 und STM-4c. Die Konformitätserklärung für die Europäische Gemeinschaft kann auf folgendem, öffentlich zugänglichem Internet-Site eingesehen oder ausgedruckt werden:
http://www.lucent.com/ins/doclibrary

**Κανονιστικό Πρότυπο της Ευρωπαϊκής Ένωσης**

**Σήμανση CE**

Με το παρόν, η Lucent Technologies, δηλώνει ότι τα PacketStar® PSAX1000 (-48Vdc και 220 V ac), PSAX1250 (-48Vdc και 220 V ac), PSAX2300, και PSAX4500 Multiservice Media Gateways ευρυπολύζονται με τις βασικές απαιτήσεις και λοιπές σχετικές διατάξεις των Οδηγιών του Συμβουλίου:

- Χαμηλή τάση 72/23/EOK
- Ηλεκτρομαγνητική συμβατότητα (EMC) 89/336/EOK)
- Ραδιοφωνικός εξοπλισμός και Εξοπλισμός τερματικού τηλεπικοινωνιών 1999/5/EK
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255-700-117

Ta Lucent PacketStar PSAX Multiservice Media Gateways, joihun toteutusmaata
EDEN (EFTA) sovelletaan EU:n nimen ja sääntöjen kanssa. E1, E3, STM-1, ja STM-4. Ei ole
Ympäristössä työllistävä tai ilman vahvasti Internet
http://www.lucent.com/ins/doclibrary

Euroopan unionin sääntelystandardit

CE-merkki

Lucent Technologies vakuuttaa täten, että PacketStar PSAX 1000 (-48 V dc ja
220 V vaihtovirtaa), PSAX 1250 (-48 V dc ja 220 V vaihtovirtaa), PSAX 2300,
ja PSAX 4500 Multiservice Media Gateway täyttävät seuraavien neuvoston
direktiivien keskeiset vaatimukset ja asiaankuuluvat määräykset:

- Pienjännite 72/23/EY
- Sähkömagneettinen yhteensopivuus (EMC) 89/336/EY
- Radiolaitteet ja telepäätelaitteet 1999/5/EY

Lucent PacketStar PSAX Multiservice Media Gateway, joita käytetään
Euroopan talousalueella, on tarkoitettu liitetäväksi E1-, E3-, STM-1- ja
STM-4c-verkkoihin. EU:n vaatimustenmukaisuusvakuutus voidaan nähdä
http://www.lucent.com/ins/doclibrary

Norme réglementaire de l’Union européenne

Label CE

Lucent Technologies déclare en ceci que les passerelles de média multiservices
PacketStar PSAX 1000 (-48 V c.c. et 220 V ca), PSAX 1250 (-48 V c.c. et
220 V ca), PSAX 2300, et PSAX 4500 sont conformes aux exigences essen-
tielles et autres dispositions pertinentes des directives suivantes du Conseil:

- Basse tension 72/23/CEE
- Compatibilité électromagnétique (CEM) 89/336/CEE
- Matériel radio et terminaux de télécommunications 1999/5/CE

Les passerelles de média multiservices PacketStar PSAX de Lucent,
commercialisées dans l’Espace économique européen sont destinées aux connexions
des réseaux E1, E3, STM-1 et STM-4c. Les déclarations de conformité CE
peuvent être consultées ou imprimées à partir du site Internet d’accès public:
http://www.lucent.com/ins/doclibrary

Normativa dell’Unione Europea

Apposizione del marchio CE

La Lucent Technologies dichiara che i gateway multiservizio PacketStar
PSAX 1000 (-48 V dc e 220 V c.a.), PSAX 1250 (-48 V dc e 220 V c.a.),
PSAX 2300, e PSAX 4500, rispondono ai requisiti essenziali ed ad altre
norme rilevanti delle seguenti direttive del Consiglio:

- Direttiva 72/23/CEE “Basse tensioni”
- Direttiva 89/336/CEE sulla compatibilità elettromagnetica
- Direttiva 1999/5/CE riguardante le apparecchiature radio e le apparecchia-
ture terminali di telecomunicazione
I gateway multiservizio Lucent PacketStar PSAX impiegati nell’area economica europea (EEA), sono concepiti per il collegamento con reti E1, E3, STM-1 e STM-4c. Le dichiarazioni di conformità CE possono essere stampate o visionate presso il seguente sito Internet di pubblico accesso: http://www.lucent.com/ins/doclibrary

**Norm van de Europese Unie**

**CE-markering**

Lucent Technologies verklaart hierbij dat de PacketStar PSAX 1000 (-48 V dc en 220V wisselstroom), PSAX 1250 (-48 V dc en 220V wisselstroom), PSAX 2300, en PSAX 4500 Multi Service Media Gateways voldoen aan de essentiële vereisten en andere relevante bepalingen van de volgende Richlijnen van de Raad:

- Laagspanning 72/23/EEG
- Elektromagnetische compatibiliteit (EMC) 89/336/EEG
- Radioapparatuur en telecommunicatie-eindapparatuur 1999/5/EG

De Lucent PacketStar PSAX Multi Service Media Gateways die in de Europese Economische Ruimte (EER) zijn ingezet, zijn bestemd voor aansluiting op E1, E3, STM-1 en STM-4c netwerken. DE EU-verklaringen van overeenstemming kunnen worden bekeken of afgedrukt op de volgende Internet-site met openbare toegang:

http://www.lucent.com/ins/doclibrary

**Padrão Regulador da União Europeia**

**CE-Marcação / Características**

A Lucent Technologies vem por este meio declarar que os Concentradores de Acesso PacketStar PSAX 1000 (-48 V dc e 220V CA), PSAX 1250 (-48 V dc e 220V CA), PSAX 2300, e PSAX 4500 obedecem aos requisitos essenciais e a outras disposições relevantes das seguintes Directivas do Conselho:

- Baixa Voltagem 72/23/EEC
- Compatibilidade Electromagnética (EMC) 89/336/EEC
- Equipamento de Rádio e Equipamento Terminal de Telecomunicações 1999/5/EC

Os Concentradores de Acesso PacketStar PSAX da Lucent instalados na Área Económica Europeia (EEA) foram concebidos para serem ligados a redes do tipo E1, E3, STM-1 e STM-4c. As Declarações de Conformidade CE podem ser vistas ou impressas no seguinte sítio de acesso público da Internet:

http://www.lucent.com/ins/doclibrary

**Norma reguladora de la Unión Europea**

**Marcas de la CE**

Por el presente, Lucent Technologies declara que las pasarelas de medios multiservicio PacketStar PSAX 1000 (-48 V cc y 220 V ca), PSAX 1250 (-48 V cc y 220 V ca), PSAX 2300, y PSAX 4500 Multiservice Media Gateways están en conformidad con los requisitos esenciales y otras disposiciones pertinentes de las siguientes directrices del consejo:

- Bajo voltaje 72/23/EEC
Legal Notices, Safety, and Regulatory Information

Regulatory Statements

- Compatibilidad electromagnética (EMC) 89/336/EEC
- Equipo de radio y equipo de terminales de telecomunicaciones 1999/5/EC

Las pasarelas de medios multiservicio Lucent PacketStar PSAX Multiservice Media Gateways desplegadas en el área económica europea (European Economic Area, EEA) están destinadas a conectarse en redes E1, E3, STM-1 y STM-4c. Las declaraciones de conformidad de la CE pueden verse o imprimirse en el siguiente sitio Internet de acceso público:
http://www.lucent.com/ins/doclibrary

Europeiska unionens standardförordning

CE-märkning

Lucent Technologies deklarerar härmed att PacketStar PSAX 1000 (-48 V likström och 220 V växelström), PSAX 1250 (-48 V likström och 220 V växelström), PSAX 2300, och PSAX 4500 Multiservice Media Gateways uppfyller de väsentliga kraven och andra relevanta bestämmelser som gäller enligt följande Europarådsdirektiv:
- Lågspänning 72/23/EEC
- Elektromagnetisk kompatibilitet (EMC) 89/336/EEC
- Radioutrustning och telekommunikationskopplingsutrustning 1999/5/EC

Lucent PacketStar PSAX Multiservice Media Gateways, som är placerad i EEA (European Economic Area), är avsedd för att anslutas till E1, E3, STM-1 och STM-4c nätverk. Europarådets Konformitetsdeklarationer kan ses på bildskärm eller skrivas ut på följande, för allmänheten tillgängliga Internet-ställe:
http://www.lucent.com/ins/doclibrary

EN 300 386-2

This equipment is a Class A digital device, intended for installation only within telecommunication centers.

VCCI Japanese Regulatory Statements

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.
CISPR 22, EN 55022, AS/NZS-3548 Class A Electromagnetic Compatibility (EMC)
Regulatory Statement

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 PacketStar® PSAX Multiservice Media Gateways, follow the safety guidelines provided below to help prevent serious personal injury and damage to the PSAX Patch Panels. Please read all warnings and instructions supplied before beginning installation or configuration of the PSAX Patch Panels. In addition to the general safety information provided below, you should also refer to the user and installation guides for other important safety information and procedures.

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

⚠️ DANGER:
Install only equipment identified in the installation guide and provided with this system. Use of other equipment may result in improper circuit connections leading to fire, personal injury, or equipment damage.

⚠️ DANGER:
Never install telecommunication equipment in wet locations.

⚠️ DANGER:
Never install telecommunication wiring during a lightning storm.

⚠️ WARNING:
Electrostatic Discharge (ESD) can damage system components. All personnel must be grounded and follow proper ESD procedures while installing, removing or handling system hardware components.

⚠️ WARNING:
Ensure that the cabling exiting the front or back of the PSAX Patch Panels is routed immediately to either side of the equipment rack before it travels up or down to its destination. The cabling must not obstruct the air flow exiting or entering other equipment.
⚠️ WARNING:
If model 23A63 or 23A64 PSAX Patch Panels are connected to DS1/T1 devices, other than the 12-Port Medium-Density DS1 modules, the telecommunication interfaces on this product should not leave the building premises unless connected to telecommunication devices providing primary and secondary protection at the building entrance.

⚠️ CAUTION:
Ultimate disposal of this product should be handled according to all laws and regulations in your specific geographic region.
About This Guide

Purpose of This Guide

The PacketStar® PSAX Patch Panels for Multiservice Media Gateways Installation Guide provides information about the following:

• Observing appropriate safety and ventilation precautions in setting up and operating the PSAX Patch Panels
• Setting up your hardware components in preparation for installation
• Installing your PSAX Patch Panels and related hardware
• Understanding the PSAX Patch Panels functions and features

Audience for This Guide

The information in this guide is intended for technicians or installers who install the PSAX Patch Panels for PSAX Multiservice Media Gateways.

What You Should Know

Before you use this document or use the PSAX Patch Panels 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 install and use the PacketStar® PSAX Multiservice Media Gateways

Related Reading

Product Information Library

To install, operate and configure your PSAX system, read the PSAX publications provided on your Lucent Technologies PacketStar PSAX Multiservice Media Gateways Products, Product Information Library CD-ROM.

Printed Documents

For your convenience, many of the documents included on the PacketStar PSAX Multiservice Media Gateways Product Information Library CD-ROM are also available in printed form. You can order these documents through the Lucent Technologies Customer Information Center Web site at: www.lucentdocs.com.
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 industry standards and specifications.

Icons and Symbols Used in This Document

Follow all safety guidelines in this document to help prevent personal injury to you and damage to the PSAX Patch Panels for PSAX Multiservice Media Gateways. Refer to the procedures within this installation guide for important safety information and proper procedures.

Standard icons and symbols to alert you to dangers, warnings, cautions, and notes are described as follows:

⚠️ DANGER:
Warnings for a 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 Patch Panels, refer to the Lucent Technologies InterNetworking Systems Global Warranty, which accompanied your 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.
About This Guide

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 PSAX family of Multiservice Media Gateways and the complete line of Lucent Technologies products, visit our Web site at www.lucent.com.

About the PacketStar Product Family

Lucent Technologies provides a complete range of PSAX Multiservice Media Gateways in the PacketStar PSAX family.

PSAX 1000 Multiservice Media Gateway

The PacketStar PSAX 1000 Multiservice Media Gateway is designed to provide a full range of central office-based multiservice media gateway functions in a small, competitively-priced package suitable for customer premise deployment. Ideal for central office, large enterprise, or wireless cell site multiservice media gateway applications, the PSAX 1000 system provides highly reliable network access for time-division multiplex voice, Frame Relay, 10/100Base-T Ethernet, and ATM data applications.

When it is functioning in a redundant operating mode and after it has experienced a single-point failure, the PSAX 1000 system provides up to 630 Mbps of ATM cell bus capacity. The total ATM cell bus capacity of the system may also be scaled to provide nonblocking, nonredundant chassis bandwidths beyond 630 Mbps.

Supporting four slots (19-inch chassis) for I/O and server modules—with a full range of interfaces such as DS0A, DS1/E1, DS3/E3, OC-3, OC-3c/STM-1, OC-12c/STM-4c, 10/100Base-T Ethernet, and serial—the PSAX 1000 system is a cost-effective access switch solution for connecting to legacy equipment.

PSAX 1250 Multiservice Media Gateway

The PacketStar PSAX 1250 Multiservice Media Gateway is designed to provide a full range of central office-based multiservice ATM access functions. Ideal for the central office or a large enterprise’s multiservice media gateway, the PSAX 1250 system provides highly reliable network access for time-division multiplex voice, frame relay, 10/100Base-T Ethernet, and ATM data applications.

When it is functioning in a redundant operating mode and after it has experienced a single-point failure, the PSAX 1250 system provides up to 600 Mbps of ATM cell bus capacity. The total ATM cell bus capacity of the system may also be scaled to provide nonblocking, nonredundant chassis bandwidths beyond 600 Mbps.
Supporting 10 slots (19-inch chassis) or 14 slots (23-inch chassis) for I/O and server modules—with a full range of interfaces such as DS0A, DS1/E1, DS3/E3, OC-3, OC-3c/STM-1, OC-12c/STM-4c, 10/100Base-T Ethernet, and serial—the PSAX 1250 system is a cost-effective access switch solution for interworking with legacy equipment.

**PSAX 2300 Multiservice Media Gateway**

The PacketStar PSAX 2300 Multiservice Media Gateway offers carrier-grade, high-density multiservice ATM access functions. Designed as the multiservice media gateway for the central office or for a large enterprise customer, the PSAX 2300 system provides network access for time-division multiplex voice, frame relay, 10/100Base-T Ethernet, and ATM data applications.

When it is functioning in a redundant operating mode and after it has experienced a single-point failure, the PSAX 2300 system provides up to 1.9 Gbps of ATM cell bus capacity. The total ATM cell bus capacity of the system may also be scaled to provide nonblocking, nonredundant chassis bandwidths beyond 1.9 Gbps.

Supporting 15 slots for I/O and server modules—with provisions for OC-3, OC-3c/STM-1, and OC-12c/STM-4c interfaces, N x T1/E1 module protection switching, and a full range of interfaces such as DS0A, DS1/E1, DS3/E3, 10/100Base-T Ethernet, and serial—the PSAX 2300 system solves demanding and diverse network design challenges with ease.

**PSAX 4500 Multiservice Media Gateway**

The PacketStar PSAX 4500 Multiservice Media Gateway provides carrier-class reliability, with an unmatched range of service capabilities, end-to-end traffic prioritization, “any-service, any-channel” flexibility, and breakthrough voice technology. Ideal for the central office or a large enterprise multiservice media gateway, the PSAX 4500 system provides highly reliable network access for time-division multiplex voice, frame relay, 10/100Base-T Ethernet, and ATM data applications.

When it is functioning in a redundant operating mode and after it has experienced a single-point failure, the PSAX 4500 system provides up to 4.2 Gbps of ATM cell bus capacity. The total ATM cell bus capacity of the system may also be scaled to provide nonblocking, nonredundant chassis bandwidths beyond 4.2 Gbps.

The high-performance midplane design supports 15 interface slots. Module protection for two groups of four or six multiport DS3, STS-1e, or E3 modules is provided via an N:1 protection scheme using rear access line interface modules. The protection module provides backup so that on the failure of any one of the modules in a group, traffic is maintained. A single PSAX 4500 system at the edge of the carrier network can transition traffic from a large number of network customers over high-speed DS1/E1 IMA, DS3/E3, OC-3, OC-3c/STM-4c, and OC-12c/STM-4c trunks into the ATM core, managing the whole quickly and efficiently, down to the individual permanent virtual circuit.
Through the use of the latest DSP voice technology, the PSAX 4500 system supports advanced voice traffic over ATM (VToA) services for up to 6048 DS0 channels. As a multiservice media gateway—with H.248 call control, CAS, PRI, GR-303, and V5.2 protocols, 3-Port DS3/STS-1e, 1-Port OC-3/STM-1 CES, and Tones and Announcements modules—the PSAX 4500 system provides packet solutions for voice over xDSL, trunking, tandem, and PRI offload switching.

Comments on This Guide

To comment on the PacketStar® PSAX Patch Panels for Multiservice Media Gateways Installation Guide, please complete the comment card that accompanied your shipment and mail it to the following address:

Senior Manager, Information Design and Development Team
Lucent Technologies
PacketStar PSAX Products
8301 Professional Place
Landover, MD 20785
USA

You can also fax the comment card to us at: 301-809-4540.
Getting Started

Overview of This Section

This section describes the components and specifications for the PacketStar PSAX Patch Panels for PSAX Multiservice Media Gateways. Before beginning your installation, read this section to ensure that you have ordered the equipment you need for your environment, and that you have all the tools and materials required to perform the installation.

Product Modification or Repair

Do not make electrical or mechanical modifications to any of the components in the PSAX Patch Panels. 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 Patch Panels. Modifying or tampering with the PSAX Patch Panels voids your warranty.

Overview of the PSAX Patch Panels

The following PSAX Patch Panels are used to distribute the ports from a number of PSAX I/O modules:

- PSAX 12-Port BNC Patch Panel
- PSAX 24-Port RJ Patch Panel
- PSAX 48-Port RJ Patch Panel

The following PacketStar® PSAX Multiservice Media Gateway I/O modules require the use of the PSAX Patch Panels described in this guide to distribute ports to the network:

23N33  12-Port Medium-Density DS1 IMA
23N34  21-Port High-Density E1 IMA
23N64  12-Port Medium-Density DS1 Multiservice
23N66  21-Port High-Density E1 Multiservice
24N64  12-Port Medium-Density DS1/E1/DS0A CES

Refer to the appropriate module guide for a description and operation of the modules. Refer to the appropriate chassis user guide and installation instructions for the installation and setup procedures of the modules.
Overview of the PSAX 12-Port BNC Patch Panel

The PSAX 12-Port BNC Patch Panel has a 50-pin RJ-48H connector on the module interface side (labeled PORT 1–12) to connect the Lucent cable (ordered with module) from the I/O module to the patch panel. The 12 pairs of BNC connectors on the network side (labeled 1–12 RX and TX) provide the interface between the patch panel and network circuits. Balanced/unbalanced (Balun) impedance matching transformers provide the interface between each 120-ohm balanced pair (tip/ring TX and RX) on the RJ-48H connector and each 75-ohm unbalanced transmit and receive BNC connector.

Two patch panels are required to break out the port connections on the 21-Port High-Density E1 Multiservice and IMA modules (see Figure 1).

Figure 1. Module Interface Side of Two PSAX 12-Port BNC Patch Panels and a 21-Port High-Density E1 Module

Figure 2 illustrates the 12 pairs of BNC connectors on the network side of the patch panel.
Overview of the PSAX 24-Port RJ Patch Panel

The PSAX 24-Port RJ Patch Panel has two 50-pin RJ-48H connectors on the module interface side (labeled PORT 1–12 and PORT 13–24) to connect the Lucent cables (ordered with module) from the I/O module to the patch panel. The 24 RJ-48C connectors on the network side (labeled 1–24) provide the interface between the patch panel and network circuits.

One patch panel is required to break out the port connections on one 21-Port High-Density E1 Multiservice or IMA module or two 12-Port Medium-Density DS1 Multiservice or IMA modules (see Figure 3).
Figure 4 illustrates the 24 RJ-48C connectors on the network side of the patch panel.

Overview of the PSAX 48-Port RJ Patch Panel

The PSAX 48-Port RJ Patch Panel has four 50-pin RJ-48H connectors on the module interface side (labeled PORT 1–12, PORT 13–24, PORT 25–36, and PORT 37–48) to connect the Lucent cables (ordered with module) from the I/O module to the patch panel. The 48 RJ-48C connectors on the network side (labeled 1–48) provide the interface between the patch panel and network circuits.

One patch panel can break out the port connections on two 21-Port High-Density E1 Multiservice or IMA modules or four 12-Port Medium-Density DS1 Multiservice or IMA modules (see Figure 5). The patch panel can also accommodate a combination of one 21-Port High-Density E1 Multiservice or IMA module and two 12-Port Medium-Density DS1 Multiservice or IMA modules.
Components Supplied with the PSAX Patch Panels

The PSAX Patch Panels are shipped with the components listed in Table 1.

Note: Equipment rack mounting screws must be supplied by the customer for the equipment racks used in the CO or switch room.
Hardware Specifications

Chassis Specifications

The specifications for the PSAX Patch Panels are given in Table 2.

Table 2. PSAX Patch Panels Hardware Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
</table>
| Port Configuration  | • **12-Port**: 12 paired (TX/RX) BNC coaxial connections for external connections and 1, 50-pin RJ-48H connector for PSAX I/O module connections.  
                      • **24-Port**: 24 RJ-48C connections for external connections and 2, 50-pin RJ-48H connectors for PSAX I/O module connections.  
                      • **48-Port**: 48 RJ-48C connections for external connections and 4, 50-pin RJ-48H connectors for PSAX I/O module connections. |
| Connector Impedance | • **12-Port**: BNC, 75 ohms (unbalanced) and RJ-48H, 120 ohms for E1 and 100 ohms for T1 (balanced)  
                      • **24-Port**: RJ-48C and RJ-48H, 120 ohms for E1 and 100 ohms for T1 (balanced)  
                      • **48-Port**: RJ-48C and RJ-48H, 120 ohms for E1 and 100 ohms for T1 (balanced) |
| Weight              | • **12-Port**: 1.46 kg (3.9 lb)  
                      • **24-Port**: 1.46 kg (3.9 lb)  
                      • **48-Port**: 2.06 kg (4.5 lb) |
System Environmental Specifications

The environmental specifications for the PSAX Patch Panels are given in Table 3.

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature range</td>
<td>0° to 50° C (32° to 122° F)</td>
</tr>
<tr>
<td>Operating humidity range</td>
<td>5% to 85% relative humidity</td>
</tr>
<tr>
<td>Operating altitude range</td>
<td>197 feet below sea level to 13,123 feet above sea level</td>
</tr>
<tr>
<td>Storage temperature range</td>
<td>-40° to 70° C (-40° to 158° F)</td>
</tr>
<tr>
<td>Storage humidity range</td>
<td>0 to 90% noncondensing</td>
</tr>
</tbody>
</table>

Ventilation

The PSAX Patch Panels do not have any specific ventilation requirements. However, when mounting the PSAX Patch Panels above or below the PSAX chassis, the ventilation requirements of the PSAX chassis should be noted as follows:

- PSAX 1000 chassis air flow is from right to left and rear.
- PSAX 1250 chassis air flow is from bottom to top and must also follow these guidelines:
  - Mounting above the chassis: the PSAX Patch Panels can be mounted anywhere above the chassis to within a minimum of 4.5-cm (1.75-in.) above the chassis. A 1-RU blank spacer must be mounted between the PSAX Patch Panels and PSAX 1250 chassis to maintain proper air flow.
  - Mounting below the chassis: the PSAX Patch Panels can be mounted anywhere below the PSAX 1250 Fan Tray which is mounted directly under the PSAX 1250 chassis.
- PSAX 2300 chassis air flow is from front to back.
- PSAX 4500 chassis air flow is from front to back.

Refer to your facility site plan for specific details on the location of the PSAX Patch Panels.
Equipment Grounding

The PSAX Patch Panels do not require any grounding.

Tools and Materials Needed

Before beginning the installation procedures, be sure to have the tools and materials listed in Table 4 on hand.

Table 4. Tools and Materials to Install the PSAX Patch Panels

<table>
<thead>
<tr>
<th>Lucent Part No.*</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-4987C</td>
<td>Grounding wrist strap</td>
</tr>
<tr>
<td>R-5961 L1</td>
<td>Grounding foot strap</td>
</tr>
<tr>
<td>R-4131</td>
<td>Wire cutters (16–26 gauge)</td>
</tr>
<tr>
<td>R-5999</td>
<td>Needle nose pliers</td>
</tr>
<tr>
<td>R-5351</td>
<td>Wire strippers</td>
</tr>
<tr>
<td>R-4265 L4</td>
<td>Plastic cable ties</td>
</tr>
<tr>
<td>R-2916 L9</td>
<td>Nylon lacing cord</td>
</tr>
<tr>
<td>ITE-7173</td>
<td>Cletop connector cleaning system</td>
</tr>
<tr>
<td>Local purchase</td>
<td>Assorted flathead screwdrivers</td>
</tr>
<tr>
<td>Local purchase</td>
<td>Assorted Phillips screwdrivers</td>
</tr>
<tr>
<td>Local purchase</td>
<td>Nutdriver set</td>
</tr>
</tbody>
</table>

* For Lucent installers only.

Note: To mount the PSAX Patch Panels in an equipment rack, you are required to supply the appropriate machine screws for the equipment racks or cabinets used in the facility.

Cabling Requirements

Before beginning the installation process, verify that the following cabling is on hand.

Note: Unless otherwise indicated, the customer is required to supply the necessary cables and connections to integrate the PSAX Patch Panels into their network based on site planning documents.

Customer Supplied Network Cabling

The PSAX Patch Panels have either RJ-48C or BNC connections and require shielded cabling to interface with the network equipment. The PSAX 12-Port BNC Patch Panel provides BNC connectors. The PSAX 24-Port RJ Patch Panel and PSAX 48-Port RJ Patch Panel provide RJ-48C connectors. Connector pin assignments are provided in Appendix A for each patch panel.
Cabling Supplied with the PSAX Patch Panels

No cabling is supplied with the PSAX Patch Panels. The cabling between the I/O modules and PSAX Patch Panels is supplied with the modules as follows:

**Connecting High-Density E1 Modules to the PSAX Patch Panels**

A standard 10-foot Lucent cable (COMCODE 300550639) can be ordered with the 21-Port High-Density E1 modules (23N66 and 23N34) or ordered from the cable manufacturer (AMP/Tyco p/n 1653321). The pin assignments for the Lucent cable are described in the PacketStar PSAX 21-Port High-Density E1 Module User Guides.

The Lucent cable can be extended for short-haul links of up to 500 feet (with 5 dB cable loss) by connecting the Lucent cable to an Avaya cable (p/n 1010025AGY CUSTL, at -1 dB per 100 feet), or equivalent. Use RJ-48H connectors (for example, Cinch p/n 57-10500-271A and Cinch p/n 57-20500-7A) on the extension cable to link the Lucent cable to the PSAX Patch Panels.

**Connecting Medium-Density DS1 Modules to the PSAX Patch Panels**

A standard 10-foot Lucent cable (COMCODE 300550639) can be ordered with the 12-Port Medium-Density DS1 modules (23N64 and 23N33) or ordered from the cable manufacturer (AMP/Tyco p/n 1653321). The pin assignments for the Lucent cable are described in the PacketStar PSAX 12-Port Medium-Density DS1 Module User Guides.

The Lucent cable can be extended for short-haul links of up to 500 feet (with 6 dB cable loss) by connecting the Lucent cable to an Avaya cable (p/n 1010025AGY CUSTL, at -1.2 dB per 100 feet), or equivalent. Use RJ-48H connectors (for example, Cinch p/n 57-10500-271A and Cinch p/n 57-20500-7A) on the extension cable to link the Lucent cable to the PSAX Patch Panels.

**Connecting the 12-Port Medium-Density DS1/E1/DS0A CES Module to the PSAX Patch Panels**

The 12-Port Medium-Density DS1/E1/DS0A CES module (24N64) connects to the PSAX Patch Panels with a shielded 10-foot Lucent cable assembly (COMCODE 300468030). The pin assignments for the Lucent cable are described in the PacketStar PSAX 12-Port Medium-Density DS1/E1/DS0A CES Module User Guides.

An equivalent shielded cable with an RJ-48H connector (for example, a Cinch 90° connector, p/n 57-10500-7, a Cinch 180° connector, p/n 57-30500-4, a Cinch 270° connector, p/n 57-10500-271, or equivalent) may also be used. You can connect to this cable per the specifications outlined in ANSI T1.403-1999.
Installing the Patch Panel

Overview of This Section

This section provides detailed procedures for installing the PSAX Patch Panels with the PacketStar® PSAX Multiservice Media Gateways. These sections describe the installation of the PSAX Patch Panels:

1. “Before You Begin”
2. “Sample Installation with the PSAX 1250 Chassis” on page 18
3. “Installing the PSAX Patch Panels” on page 19
4. “Connecting the Lucent Cable to the Patch Panel” on page 20
5. “Connecting the Lucent Cable to the I/O Module” on page 21
6. “Connecting Network Cabling to the PSAX Patch Panels” on page 25
7. “Configuring and Testing the System” on page 25

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

Before You Begin

Before you start setting up the PSAX Patch Panels, be sure to do the following tasks:

1. Select a location that:
   • Accommodates the weight and size of the PSAX Patch Panels
   • 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 shipment is complete (see “Components Supplied with the PSAX Patch Panels” on page 11).

3. Check the environmental conditions of your site (see “System Environmental Specifications” on page 13).

4. Obtain the tools you will need during installation (see “Tools and Materials Needed” on page 14).
5 Remove components from their packaging as called for in the following procedures. Save the original carton (including foam and packaging) in which the patch panel was received. This allows you to ship the system safely to another location in the future.

Sample Installation with the PSAX 1250 Chassis

Figure 7 illustrates a sample installation of three PSAX 1250 systems in an equipment rack. The PSAX Patch Panels are located above the PSAX 1250 system with a 1-RU blank spacer between them or immediately below the PSAX 1250 Fan Tray. The 1-RU blank spacer is required to allow for proper ventilation around the chassis.

The PSAX Patch Panels can be installed in the same equipment rack as the PSAX chassis or in another equipment rack that is within reach of the Lucent cables (10-foot length) used to connect the I/O modules to the patch panels.
Installing the PSAX Patch Panels

The following procedures describe how to attach the mounting brackets, install the PSAX Patch Panels, and connect interface cables between the I/O modules and PSAX Patch Panels.

Attaching the Mounting Brackets

The PSAX Patch Panels come with mounting brackets to install the patch panels in a standard 19-inch equipment rack (see Figure 8). The brackets have 1.25-inch hole spacing and allow for a flush-mount position. By relocating the brackets on the patch panel, you can also achieve mid-mount and recessed positions. Make sure the position you choose is aligned with the PSAX chassis. The patch panels are designed to be mounted in either direction; RJ-48H connectors facing front or back. However, it is recommended that the RJ-48H connectors face front with the front of the PSAX chassis.

Additional brackets can be ordered separately through your Lucent Technologies sales representative as follows:

- 1.00-inch hole spacing, 19-inch rack (part number 05-23S60014)
- 1.25-inch hole spacing, 23-inch rack (part number 05-23S60015)
- 1.00-inch hole spacing, 23-inch rack (part number 05-23S60016)

Perform the following procedure only when the mounting brackets need to be repositioned or replaced.

Begin

1. Remove the patch panel from its shipping container.
   
   **Note:** Save or recycle the shipping container. It is recommend that you recycle this material if appropriate facilities are available in your area.

2. Take inventory of the contents of the patch panel (see Table 1). Contact your Lucent Technologies representative if any item is missing.

3. Using a Phillips screwdriver, unscrew the three screws from each mounting bracket.
Installing the Patch Panel

Connecting the Lucent Cable to the Patch Panel

4 Align the mounting bracket with the appropriate screw holes in the side of the patch panel to match the position of the rest of the equipment in the equipment rack.

5 Secure each bracket to the patch panel with the three previously removed screws.

6 When completed, continue with the next section.

Installing the PSAX Patch Panels

Perform the following procedure to install the PSAX Patch Panels in the equipment rack.

Note: Refer to “Ventilation” on page 13 to verify the location of the patch panel based on the ventilation requirements of each PSAX chassis. Also, note the cable length requirements described in “Cabling Requirements” on page 14.

Begin

1 Locate the area in the equipment rack where the patch panel will be installed and align the mounting bracket holes with the holes in the equipment rack.

2 Secure the patch panel to the equipment rack with four appropriately sized machine screws (customer supplied).

3 When completed, continue with the next section.

End

Connecting the Lucent Cable to the Patch Panel

Perform the following procedure to connect the Lucent cables to the PSAX Patch Panels.

Note: The Lucent cables are ordered separately with the I/O modules. Refer to “Cabling Requirements” on page 14 for additional information.

Begin

1 Locate the Lucent cable that is supplied with the I/O module, and if necessary, remove the screw from the 50-pin RJ-48H cable connector (see Figure 9).
Installing the Patch Panel  
Connecting the Lucent Cable to the I/O Module

2  Locate the 4-40 x 3/16-in. screw that is supplied with the patch panel and screw it into the RJ-48H cable connector where the screw was removed.

**Note:** Two 4-40 x 3/16-in. screws are supplied with the patch panel. One or both screws are used depending on the type of cable connector provided on the cable. For the 90° or 270° connectors, one screw and a cable tie wrap are required. For the 180° connectors both screws are required.

3  Plug the RJ-48H cable connector on the Lucent cable into the RJ-48H connector on the patch panel.

4  Secure the RJ-48H cable connector to the patch panel with the 4-40 x 3/16-in. screw (see Figure 9).

5  Fasten the cable end of the RJ-48H cable connector to the patch panel with one of the supplied cable tie wraps.

6  Make sure that the cable is properly dressed between the PSAX Patch Panels and the PSAX systems to prevent excessive tension on the connector, and to ensure that the cable does not block air flow around the equipment (see “Ventilation” on page 13 for additional information).

7  When completed, continue with the next section.

**End**

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**Connecting the Lucent Cable to the I/O Module**

The following procedures describe how to connect the Lucent cable to the PSAX I/O modules.

**Connecting the 12-Port Medium-Density DS1 Module Cable**

Perform the following procedure to connect the Lucent cable to either the 12-Port Medium-Density DS1 Multiservice module or the 12-Port Medium-Density DS1 IMA module.
Installing the Patch Panel

Connecting the Lucent Cable to the I/O Module

**Note:** The Lucent cables are ordered separately with the I/O modules. Refer to “Cabling Requirements” on page 14 for additional information.

**Begin**

1. Verify that the module is properly installed in the chassis.
2. Plug the Lucent cable into the module connector, as shown in Figure 10, and snap the connector into place.
3. Verify that the connector is properly seated into the module connector.
4. Make sure that the cable is properly dressed between the PSAX Patch Panels and the PSAX systems to prevent excessive tension on the connector, and to ensure that the cable does not block air flow around the equipment (see “Ventilation” on page 13 for additional information).

**End**

![Figure 10. Connecting the 12-Port Medium-Density DS1 Multiservice or IMA Module Cable](image)
Connecting the 21-Port High-Density E1 Module Cables

Perform the following procedure to connect the Lucent cable to either the 21-Port High-Density E1 Multiservice module or the 21-Port High-Density E1 IMA module.

**Note:** The Lucent cables are ordered separately with the I/O modules. Refer to “Cabling Requirements” on page 14 for additional information.

---

**Begin**

1. Verify that the module is properly installed in the chassis.
2. Plug the Lucent cable into the module connector, as shown in Figure 11, and snap the connector into place.
3. Verify that the connector is properly seated into the module connector.
4. Make sure that the cable is properly dressed between the PSAX Patch Panels and the PSAX systems to prevent excessive tension on the connector, and to ensure that the cable does not block air flow around the equipment (see “Ventilation” on page 13 for additional information).

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**End**

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**Figure 11. Connecting the 21-Port High-Density E1 Multiservice or IMA Module Cables**

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Installing the Patch Panel
Connecting the Lucent Cable to the I/O Module

24 255-700-117


24

255-700-117

Connecting the 12-Port Medium-Density DS1/E1/DS0A CES Module Cable

The following procedures describe how the Lucent cable is connected to the 12-Port Medium-Density DS1/E1/DS0A CES module when it is installed in one of the PSAX chassis.

Begin

1. Verify that the module is properly installed in the chassis.

2. Plug the Lucent cable into the module connector as shown in Figure 12 for the PSAX 1250, PSAX 2300, or PSAX 4500 chassis or Figure 13 for the PSAX 1000 chassis.

3. Fasten the cable connector to the module with the screw provided. (Remove cable connector screw if necessary.)

4. Verify that the connector is properly seated into the module connector.

5. Thread a cable tie wrap around the cable connector and through the connector tie bracket hole. Tighten the cable tie wrap until it is secure.

6. Make sure that the cable is properly dressed between the PSAX Patch Panels and the PSAX systems to prevent excessive tension on the connector, and to ensure that the cable does not block air flow around the equipment (see “Ventilation” on page 13 for additional information).

Figure 12. Connecting the 12-Port MD DS1/E1/DS0A CES Module Cable (with 90° Cinch connector)
Connecting Network Cabling to the PSAX Patch Panels

The PSAX Patch Panels provide either BNC or RJ-48C connections to the network. Coaxial cables with BNC connectors are required to connect to the PSAX 12-Port BNC Patch Panel. Twisted-pair shielded cables with RJ-48C connectors are required to connect to the PSAX 24-Port RJ Patch Panel and PSAX 48-Port RJ Patch Panel. The patch panel connector pin assignments are described in Appendix A.

Configuring and Testing the System

At this point, the physical installation of the PSAX Patch Panels is complete. Refer to the appropriate PacketStar PSAX chassis user guides to perform the following functions:

- Configuring the basic system
- Upgrading and backing up system software, if necessary
- Diagnosing system malfunctions, if necessary

Refer to the PacketStar PSAX Module User Guides or the AQueView User Guides to perform the following functions:

- Configuring ports and channels using the console interface or AQueView EMS
- Configuring the interfaces using the console interface or AQueView EMS

Refer to the PacketStar PSAX System Connections Provisioning Guide to provision module connections.

The chassis and module user guides also provide functional descriptions of the system and modules.
Installing the Patch Panel
Configuring and Testing the System

A Connector Pin Assignments

Overview of This Appendix

This appendix describes the connector pin assignments between the connections on the PSAX Patch Panels.

PSAX 12-Port BNC Patch Panel Connections

Table 5 lists the pin assignments between the 50-pin RJ-48H connector and the BNC connectors on the PSAX 12-Port BNC Patch Panel.

Table 5. PSAX 12-Port BNC Patch Panel Connector Pin Assignments

<table>
<thead>
<tr>
<th>BNC Connectors</th>
<th>RJ-48H Connector*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Port</strong></td>
<td><strong>Network Signal Pair</strong></td>
</tr>
<tr>
<td>1</td>
<td>RX 1</td>
</tr>
<tr>
<td></td>
<td>TX 1</td>
</tr>
<tr>
<td>2</td>
<td>RX 2</td>
</tr>
<tr>
<td></td>
<td>TX 2</td>
</tr>
<tr>
<td>3</td>
<td>RX 3</td>
</tr>
<tr>
<td></td>
<td>TX 3</td>
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<td>4</td>
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<td>5</td>
<td>RX 5</td>
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<td>6</td>
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<td>8</td>
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* Pins 13 and 38 of the RJ-48H connector are not used.
Table 6 lists the pin assignments between the two 50-pin RJ-48H connectors and the 24 RJ-48C connectors on the PSAX 24-Port RJ Patch Panel.

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### Appendix A Connector Pin Assignments

#### PSAX 48-Port RJ Patch Panels for Multiservice Media Gateways Installation Guide, Issue 3

**Table 6. PSAX 24-Port RJ Patch Panel RJ-48H to RJ-48C Connector Pin Assignments (Continued)**

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* Pins 13 and 38 are not used. The two RJ-48H connectors are labeled PORT 1–12 and PORT 13–24 and match with the RJ-48C connectors labeled 1–24. The pin assignments are the same for each connector.

### PSAX 48-Port RJ Patch Panel Connections

Table 6 lists the pin assignments between the four 50-pin RJ-48H connectors and the 48 RJ-48C connectors on the PSAX 48-Port RJ Patch Panel.

**Table 7. PSAX 48-Port RJ Patch Panel RJ-48H to RJ-48C Connector Pin Assignments**

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Table 7. PSAX 48-Port RJ Patch Panel RJ-48H to RJ-48C Connector Pin Assignments (Continued)

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Appendix A  Connector Pin Assignments
PSAX 48-Port RJ Patch Panel Connections

Table 7. PSAX 48-Port RJ Patch Panel RJ-48H to RJ-48C Connector Pin Assignments (Continued)

<table>
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<td>TTIP</td>
<td>5</td>
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</table>

* Pins 13 and 38 are not used. The four RJ-48H connectors are labeled PORT 1–12, PORT 13–24, PORT 25–36, and PORT 37–48 and match with the RJ-48C connectors labeled 1–48. The pin assignments are the same for each connector.
Appendix A  Connector Pin Assignments
PSAX 48-Port RJ Patch Panel Connections