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## SLC<sup>®</sup> Series 5 Carrier System

### AUA109 (RT) Transmit/Receive Unit— 5SCS30J

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#### Features/Functions

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- Compatible with 5ESS<sup>®</sup>, and DMS<sup>\*</sup>-100 local digital switches for TR-008<sup>†</sup> service
- Faceplate FAIL and ON PROT LEDs
- UL<sup>‡</sup> recognized
- Conforms to appropriate industry standards
- No option switches

\* DMS is a trademark of Northern Telecom, LTD.

† Bellcore Technical Reference TR-TSY-000008, Issue 2, August 1987, and all Revisions and Supplements, "Digital Interface Between the SLC<sup>®</sup> 96 Digital Loop Carrier System and a Local Digital Switch," Bell Communications Research.

‡ Registered trademark of Underwriters Laboratories Inc.

#### Description

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This data sheet describes the AUA109 (RT) transmit/receive unit (TRU) (COMCODE 108224684) and is intended for the end-user of the unit. This data sheet is being reissued to update the latest CLEI Code and COMCODE information on the AUA109 TRU

The AUA109 transmit/receive unit is used in SLC Series 5 Carrier System remote terminal (RT). It is intended to be used with Feature Package B (FPB) Mode 96 and Feature Package C/AutoCut (FPC/AC) applications. The AUA109 TRU provides the interface between two digroups of channels (for example, 24 AUA58 dual POTS channel Units), and the digital facility interface [two DS1 line interface units (LIUs)] and one line switch unit (LSU). The AUA109 TRU also provides an interface to the AUA18/AUA19 digital test unit (DTU) if installed in the bank.

When used with the MC97771A1 bank control unit (BCU) and the AUB27 alarm display unit (ADU), the AUA109 TRU may be used in place of the AUA21 TRU in FPC/AC RT configurations to provide the capability for automatic cutover to an integrated FPB Mode 1 RT with the continued capability for craft interface unit (CIU) provisioning of special service channel units (CUs).

When used with the MC97771A1 BCU the AUA109 TRU can replace the AUA22 TRU in FPB configurations. When used with the MC97771A1 BCU and AUB27 ADU, the AUA109 TRU may be used to provide Mode 1 capability with CIU provisioning of special service CUs in the FPB configuration.

In FPC/AC operation the AUA109 TRU provides the extended super framing (Fe) format, with D4 polling sequence. In FPB Mode 96 operation it provides the Fs' framing format of the *SLC*<sup>®</sup>96 Carrier System, with D1D polling sequence. The mode of operation is under BCU control. The TRU synchronizes all the plug-ins serving a 48-channel shelf of the Series 5 bank.

In the transmit direction, each AUA109 TRU sends either the D1D or D4 sequence channel polling signals to the CUs, gets the transmit pulse code modulation (PCM) bit stream from the CUs in each digroup, and time division multiplexes the channels into a 4.096-Mb/s PCM format for each digroup. The AUA109 TRU dual feeds the formatted signal to the main digital facility interface (two LIUs and the LSU).

The AUA109 TRU accepts the 4-kb/s data link from the BCU and inserts the information into the A digroup PCM bitstream. Although the AUA109 TRU is used in the AB and CD shelves, the data link is only transmitted in the A digroup. The data link output to the CD shelf TRU is not used. The AUA109 TRU extracts and inserts the Fs' data link in FPB Mode 96 and the ESF (Fe) data link in FPC.

In the receive direction, the TRU receives 4.096-Mb/s PCM from both the main digital facility (two LIUs) and the LSU. The TRU selects between these inputs based on instructions from the BCU. The AUA109 TRU distributes PCM formatted signals and channel polling control signals to the two digroups (24 channel units) under its control. The TRU also extracts the 4-kb/s data link from the received signal and sends it to the BCU.

The AUA109 TRU receives three 4 kHz clocks — one from each of the two LIUs with which it works, and one from the LSU. The TRU automatically selects one of the clocks as a reference and phase locks its voltage controlled oscillator (VCXO) to that reference generating a 4.096 MHz clock. The AUA109 TRU uses the VCXO output to synchronize its internal operation to the 24 channel units that work with it.

Figure 1 shows the faceplate diagram for the AUA109 RT transmit/receive unit. Table 1 is a common unit compatibility matrix for the FPB/FPC system. Table 2 lists the environmental specifications and Table 3 lists the typical power drain for the AUA109 TRU.

## Compatibility

Table 1 is a FPB/FPC common unit compatibility matrix showing which RT applications use the AUA109 RT transmit/receive unit.

**Table 1. AUA109 RT TRU — FPB/FPC - Common Unit Compatibility**

FPB/FPC - Autocut Applications								
Service Configurations (Notes 1 and 2)	BCUs		ADUs		TRUs			LIUs
	MC97724A1	MC97771A1	AUB24	AUB27	AUA22	AUA109	AUA105	AUA61()/62()/64()
<b>FPB Without Provisionable Specials:</b>								
FPB/U/M1	✓	✓	✓		✓	✓	✓	Any
FPB/U/M2		✓	✓				✓	D Series
FPB/I/M1	✓	✓	✓		✓	✓	✓	Any
FPB/I/M2		✓	✓				✓	D Series
<b>FPB With Provisionable Specials:</b>								
FPB/SS/U/M1		✓		✓	✓	✓	✓	Any
FPB/SS/U/M2		✓		✓			✓	D Series
FPB/SS/I/M1		✓		✓	✓	✓	✓	Any
FPB/SS/I/M2		✓		✓			✓	D Series
<b>FPB With Autocut (Notes 3 and 4)</b>								
FPC/AC		✓		✓		✓	✓	C or D Series

**Notes:**

- Where more than one unit is checked for a particular configuration, any of the units checked may be used.
- In all cases, Mode 2 capability can be converted to Mode 1 by changing ADU option setting and adding two LIUs.
- FPC/AC supports all FPC services except DCU.
- FPC/AC automatically cuts to FPB/SS/M1. By initially selecting D LIUs and AUA105 TRU, the RT will be equipped for later conversion to a Mode 2 configuration.

**Legend:**

ADU — Alarm Display Unit; BCU

BCU — Bank Control Unit

DCU — Digital Connectivity

FPB — Feature Package B

FPC/AC — Feature Package C-AutoCut

I — Integrated

LIU — Line Interface Unit

M1 — Mode 1

M2 — Mode 2 (Concentrated)

SS — Special Services (Provisionable)

TRU — Transmit/Receive Unit

U — Universal

## Specifications

Table 2 lists the environmental specifications.

**Table 2. Environmental Specifications**

<p><b>A. Temperature Range (Ambient)</b></p> <ol style="list-style-type: none"> <li>1. Operating, per TR-NWT-000057*: in Lucent Technologies cabinet mounted RT, outside ambient temperatures of -40° F (-40° C) with no solar load to +115° F (46° C) with maximum solar load and maximum power dissipation. Lucent Technologies cabinets are designed to assure that the components within do not exceed their rated temperatures for the above conditions.</li> <li>2. Storage, per TR-NWT-000057: ambient temperatures of -40° to 140° F (-40° to 60° C).</li> </ol>
<p><b>B. Relative Humidity</b></p> <ol style="list-style-type: none"> <li>1. Operating, per TR-NWT-000057. For outside ambient temperature 84° F (29° C) or less, relative humidity of 5% to 95%. For ambient temperatures above 84° F (29° C), the relative humidity is limited to that corresponding to a specific humidity of 0.024 pounds of water per pound of dry air.</li> <li>2. Storage, per TR-NWT-000057: ambient temperatures 84° F (29° C) or less, 10% to 95%. For ambient temperatures above 84° F (29° C), the relative humidity is limited to that corresponding to a specific humidity of 0.024 pounds of water per pound of dry air.</li> </ol>

\* Bellcore Technical Reference TR-NWT-000057, Issue 2, January 1993, and all Revisions and Supplements, "Functional Criteria For Digital Loop Carrier Systems," Bell Communications Research.

**Table 3. Power drain for AUA109 RT Transmit / Receive Unit**

Supply	Nominal Value
+ 5 Volts dc	680 mW

## Faceplate Features

The AUA109 transmit/receive unit faceplate is shown in Figure 1. The following LED indicators are located on the faceplate:

**FAIL** (Red LED): When lit indicates that a failure is detected on the TRU. It is normal for this LED to light momentarily during TRU installation or system resets.

**ON PROT** (Two Yellow LEDs): The bottom ON PROT LED (arrow to the left) lights on AB shelf TRU to indicate the LIU A DS1 facility is on protection, or lights on CD shelf TRU to indicate the LIU C DS1 facility is on protection. The top ON PROT LED (arrow to the right) lights on AB shelf TRU to indicate the LIU B DS1 facility is on protection, or lights on CD shelf TRU to indicate the LIU D DS1 facility is on protection.

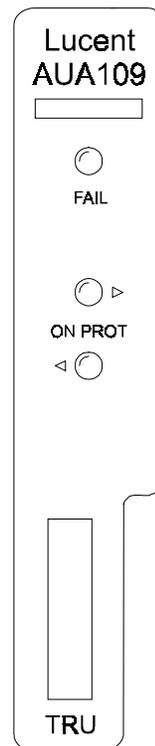


Figure 1. AUA109 TRU Faceplate Diagram

**Table 4. Edge Connections For AUA109 Transmit Receive Unit**

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<b>Finger</b>	<b>Function</b>
1	Frame Ground
5, 10 45	Circuit Ground
25	+ 5 Volts DC

## **References**

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The following document provides additional information about the use of this TRU in the *SLC Series 5 Carrier System*:

- 363-205-010      *SLC Series 5 Carrier System  
Applications and Planning Guide*
- 363-205-401      *SLC Series 5 Carrier  
System Remote Terminal - Acceptance and Turnup*
- 363-205-402      *SLC Series 5 Carrier System  
Channel Unit Installation and Testing*
- 363-205-500      *SLC Series 5 Carrier System  
Maintenance and Trouble Clearing*
- 915-710-115      *SLC Series 5 Carrier System  
Application Engineering*

## **Technical Assistance**

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Follow local procedures for obtaining technical assistance. Lucent Technologies also provides in-hours or emergency out-of-hours help for the *SLC Series 5 Carrier System* and the *SLC-2000 Access System*. Call the Lucent Technologies Regional Technical Assistance Center at 1-800-225-RTAC.

## **Ordering Information**

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Additional copies of this document (363-005-168) are available from the Customer Information Center — call 1-888-582-3688.

## **Comments**

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