



SLC[®] Series 5 Carrier System

AUA64G Power Looping DS1 Line Interface Unit— 5SLI6SY (AUA64G)

Features/Functions

- Conforms to appropriate industry standards
- Accepts up to 33.5 dB of loss
- B8ZS or ZCS line coding
- 32 kb/s or 64 kb/s option
- Faceplate FAIL and carrier line failure (CLF) LEDs
- UL* recognized
- Meets TR-1089[†] standards for lightning and AC power crosses

* Registered trademark of Underwriters Laboratories Inc.

† Telcordia Technical Reference TR-NWT-001089 Issue 1, October 1991, and all Revision and Supplements, "Electromagnetic Compatibility and Electrical Safety Generic Criteria for Network Telecommunications Equipment," Telcordia Technologies, Inc.

Description

This data sheet describes the AUA64G power looping (PL) DS1 line interface unit (LIU) (COMCODE 108716192, AUA64G) and is intended for the end-user of the unit. The AUA64G is a surface mount version of the AUA64F DS1 line interface unit. The AUA64G LIU replaces all AUA64, AUA64B, AUA64C, AUA64D and AUA64F LIUs and is required for the Mode 2 (concentration) capability of Feature Package B (FPB). This data sheet is being updated to reflect a recent circuit pack change on the AUA64G LIU series S2:2, to series S2:3 which improves receive signal sensitivity and ensures compliance with the advertised specification.

The AUA64G PL DS1 line interface unit is used in *SLC* Series 5 Carrier System remote terminal (RT) to interface the System directly to a T1 line. Typically, the AUA64G LIU are used in the RT to loop the received line powering back toward

the central office terminal (COT). However, the AUA64G LIU can be used in the COT for installations which require power looping at the central office.

The received signal is sent using the RATE switch to either the transmit/receive unit (TRU) for 64 kb/s μ -law pulse code modulation (PCM) operation, or to the low bit rate voice (LBRV) transcoder unit (TCU) for 32 kb/s operation.

In the transmit direction, this LIU converts the internal 4.096 Mb/s PCM format to a 1.544 Mb/s DS1 rate. It also inserts the extended super frame (ESF) or super frame (Fs) framing sequence, the signaling bits, and the X.25 or SLC 96 Carrier System [for FPB (Mode 96) RT applications] data link. When operating in its ESF mode, the LIU sends a yellow alarm to the far-end terminal in response to near-end failures. The AUA64G LIU also has switch-selectable 0 dB, 7.5 dB, 15.0 dB, and 22.5 dB pads to meet route junction level coordination and end-section design requirements.

In the receive direction, the AUA64G LIU loops the received T1 line-powering current back to the transmitter output. This looped current powers the other direction of the T1 line. The AUA64G LIU allows from 0 dB to 33.5 dB of loss in the end section.

The LIU converts the incoming DS1 signal to the internal 4.096 Mb/s format. It also extracts the received ABCD (in ESF only) and ABAB (in D4/SLC 96 Carrier) signaling bits. The LIU monitors the received signal for excessive CRC-6 errors (ESF only) or bipolar violations, loss of frame, and loss of signal. Failures are reported to the bank controller. Failures also cause the E-bit to be set (this freezes the signaling state in the channel units and the LIU) and, after 2.5 seconds, cause the G-bit to be set (this initiates trunk processing). When used in an RT, AUA64G LIU can loop DS1 input back to the DS1 output under the command of the bank controller. The line loopback is intended for use while single-ended T1-line fault locating is being done from the CO end of the system.

The LIU does bank loopbacks (if ordered by the bank controller) to sectionalize failures so the bank controller can provide detailed information about failures to the craft personnel.

Figure 1 shows the faceplate diagram for the AUA64G DS1 line interface unit and switch layout. Table 1 lists the environmental specifications. Table 2 lists the power drain requirements. Table 3 lists the transmit pad settings and Table 4 lists the edge connections for the AUA64G DS1 LIU.

Specifications

This unit is intended for use in *SLC Series 5 Systems* located in controlled environments that conform to the specifications of Telcordia Technologies GR-63*. It may also be used in applicable Lucent Technologies cabinets designed for *SLC Series 5 System* and intended for applications in non-controlled (outside plant) environments that conform to Telcordia Technologies GR-487†. These cabinets, when properly equipped, are designed to maintain internal environmental conditions within appropriate operational limits for *SLC-2000 Access equipment* such that system performance meets TR-NWT-000057‡.

The applicable outside plant environment criteria for cabinet enclosures (per GR-487) are summarized in Table 1 Environmental Specifications.

Table 1. Environmental Specifications

<p>A. Temperature Range (Ambient)</p> <ol style="list-style-type: none"> 1. Operating, per TR-NWT-000057: in Lucent Technologies cabinets exposed to 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 ensure that the components within do not exceed their rated temperatures for the above conditions. 2. Storage, per TR-NWT-000057: ambient temperatures of -40° to 140° F (-40° to 60° C).
<p>B. Relative Humidity</p> <ol style="list-style-type: none"> 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 pound of water per pound of dry air. 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 pound of water per pound of dry air.

* Telcordia Technologies Generic Reference GR-63, Issue 1, October 1994, and all Revisions and Supplements,

"Network Equipment-Building System Requirements: Physical Protection (a module of LSSGR, GR-64; TSGR, FR-440, and NEBS FR, FR-2063)," Telcordia Technologies, Inc.

† Telcordia Technologies General Requirements GR-487, Issue 1, June 1996, and all Revisions and Supplements. *General Requirements for Electronic Equipment Cabinets*, Telcordia Technologies, Inc.

‡ Telcordia Technologies Technical Reference TR-NWT-000057, Issue 2, January 1993, and all Revisions and Supplements, *Functional Criteria For Digital Loop Carrier Systems*, Telcordia Technologies, Inc.

Table 2. Power drain for AUA64G LIU

Supply	Maximum Value
+5 Volts dc	800 mW

Installation and Testing

There are switches to set on this unit. Procedures for setting the pre-equalization are given in 915-710-115, *SLC Series 5 Carrier System Application Engineering Practice*.

Faceplate Features and Options

The AUA64G DS1 line interface unit faceplate and circuit board switch locations are shown in Figure 1. The LED indicators and jacks on the faceplate are as follows:

FAIL (Red LED): When lit, indicates that a failure has been sectionalized to this LIU.

CLF (Yellow LED): When lit, indicates that a carrier line failure has been sectionalized to the digital facility connecting the COT to the RT.

+ V, - I Jacks: Measures the looped-side line current using these jacks.

The switch options for the AUA64G DS1 line interface unit are as follows:

- **TRANSMIT PAD** option: These four switches (TRANS- 1, 2, 3, 4) select the amount of loss inserted in the transmit path to meet route-junction and end section requirements. Refer to Table 3 for transmit pad settings versus inserted loss.

Table 3. AUA64G DS1 LIU— Transmit Pad Settings versus Inserted loss

Transmit Pad Settings versus Inserted loss				
TRANS-				Inserted loss (dB)
1	2	3	4	
OFF	OFF	OFF	ON	22.5
OFF	OFF	ON	OFF	15.0
OFF	ON	OFF	OFF	7.5
ON	OFF	OFF	OFF	0.0

- **B8ZS/ZCS** option: This switch (B/Z) selects between per-channel zero code suppression (position Z) and the bipolar with 8 zero substitute (position B) line code. This switch should be set per application office records.
- **VF CHANNEL RATE** option: This switch (RATE-64/32) allows the selection of 64 kb/s (position 64) or 32 kb/s LBRV (position 32). The standard rate is 64 kb/s.

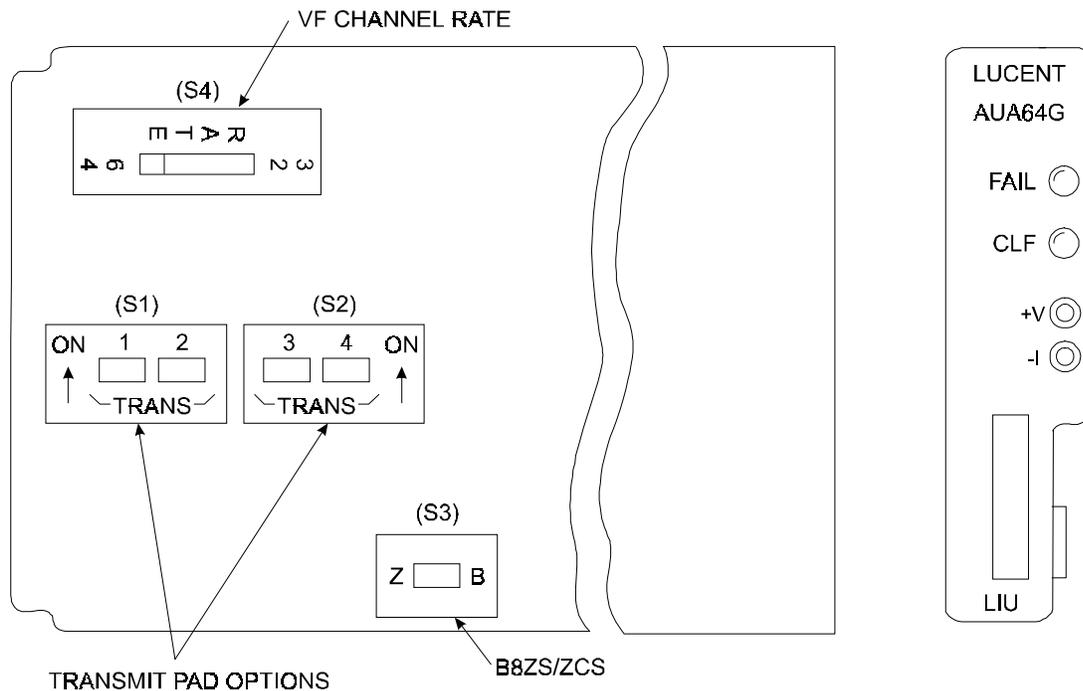


Figure 1. AUA64G LIU Faceplate Diagram and Switch Layout

Table 4. Edge Connections For AUA64G DS1 Line Interface Unit

Finger	Function
1	Frame Ground
6, 7, 25	Circuit Ground
18	+5 Volts dc
26	R1 (receive)
27	T1 (receive)
29	R (transmit)
30	T (transmit)

References

The following documents provide additional information about the use of this line interface unit in the *SLC Series 5 Carrier System*:

363-205-010	<i>SLC Series 5 Carrier System Applications and Planning Guide</i>
915-710-115	<i>SLC Series 5 Carrier System Application Engineering Practice</i>

Technical Assistance

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*. Call the Lucent Technologies Regional Technical Assistance Center at 1-800-225-RTAC.

Ordering Information

Additional copies of this document (363-005-403) are available from the Customer Information Center — call 1-888-582-3688.

Comments

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