SLC® Series 5 Carrier System

AUA64D/AUA64F DS1 LIU Power Looping — 5SLI625 (AUA64F)

The AUA64F line interface unit (LIU) is needed for T1 line fault locating procedures.

This data sheet describes the AUA64D S1:2, AUA64D S3:4, and AUA64F DS1 LIUs (COMCODE 105703961, 106313802, and 107087017, respectively) and is intended for the end-user of the unit. The AUA64D/AUA64F LIU is used in the *SLC*® Series 5 Carrier System remote terminal (RT) to interface the system directly to a T1 line. Typically, the AUA64D/AUA64F LIU is used in the RT to loop the received line powering current back toward the central office terminal (COT). However, the AUA64D/AUA64F LIU can be used in the COT for a particular installation. The AUA64F replaces all AUA64, AUA64B, AUA64C, and AUA64D LIUs and is required for the Mode 2 (concentration) capability of Feature Package B (FPB) — the LIU provides the data link for the C digroup.

This data sheet is reissued to add information for the AUA64F LIU.

Figure 1 is a functional block diagram of the unit, and Figure 2 shows the faceplate, the board outline, and the positioning of the switches and indicators of the AUA64F LIU.

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 the low bit rate voice (LBRV) transcoder unit (TCU) for 32 kb/s operation.

In the transmit direction, the AUA64D/AUA64F LIU converts the internal 4.096 Mb/s PCM or adaptive differential pulse code modulation (ADPCM) (LBRV) format to a 1.544 Mb/s DS1 rate. Also, the LIU insert the extended super frame (ESF) or 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 ESF mode, the LIU sends a yellow alarm to the far-end terminal in response to near-end failures. The AUA64D/AUA64F 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 AUA64D/AUA64F LIU loops the received T1 line-powering current back to the transmitter output. This looped current powers the other direction of the T1 line. An automatic line build-out (ALBO) and switch-selectable 0 dB and 7.5 dB pads provide compatibility with short end sections and allow from 0 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. The AUA64D/AUA64F also extracts the received ABCD (in ESF) and ABAB (in D4/*SLC* 96 carrier) signaling bits. It also monitors the received signal for excessive CRC-6 errors (ESF) or bipolar violations (Fs), 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, the AUA64D/AUA64F LIU can loop DS1 input back to the DS1 output under 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 that the bank controller can provide detailed information about failures to the craft personnel.

The switches located on the board of the AUA64D/AUA64F LIU provide the following functions.

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 (see Table 1).

Table 1. Transmit Pad Setting vs. Inserted Loss

TRANS-				
1	**2**	**3**	**4**	**Inserted Loss (dB)**
OFF	OFF	OFF	ON	22.5
OFF	OFF	ON	OFF	15.0
OFF	ON	OFF	OFF	7.5
ON	OFF	OFF	OFF	0.0

RECEIVE PAD Option — These two switches (RCV- 1, 2) insert 0 or 7.5 dB of loss in the receive path as needed to meet route-junction and end section design requirements (see Table 2).

Table 2. Receive Pad Setting vs. Inserted Loss (Note)

RCV-		
1	**2**	**Inserted Loss (dB)**
ON	OFF	0.0
OFF	ON	7.5

Note: ON — press toward the number.
OFF — press away from the number.

B8ZS/ZCS Option — This switch (B/Z) selects between per-channel zero code suppression (position Z) and the bipolar with 8 zero substitution (position B) line code. Set this switch per applicable 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.

The LED indicators and jacks located on the faceplate of the AUA64D/AUA64F LIU provide the following functions.

CLF (Yellow LED) — When lighted, this LED indicates that a carrier line failure has been identified at the digital facility connecting the COT and RT.

FAIL (Red LED) — When lighted, this LED indicates that a failure has been identified in this LIU.

+V, −I jacks — Measure for the looped-side line current from +V to −I.

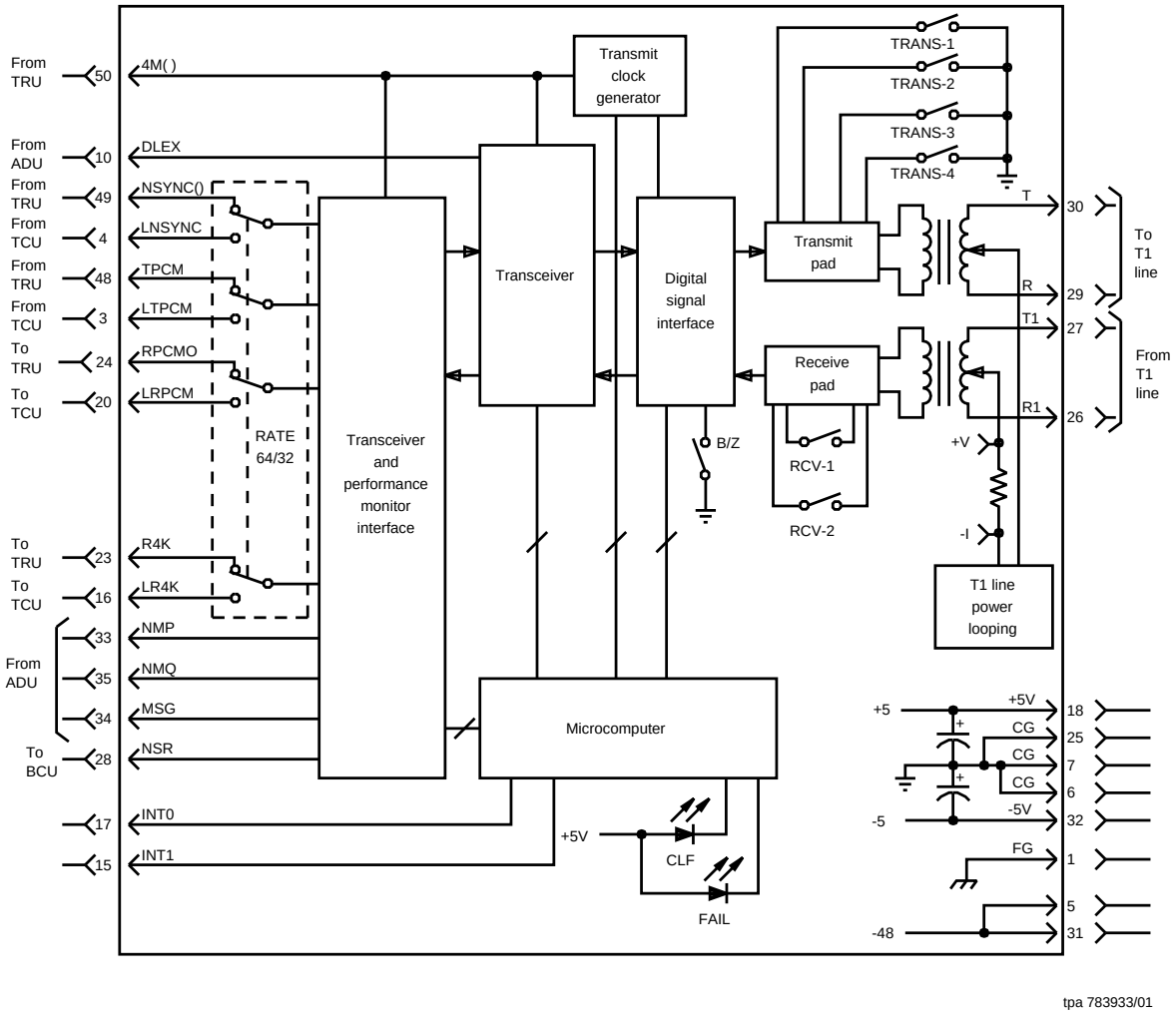

Figure 1. AUA64D/AUA64F Block Diagram

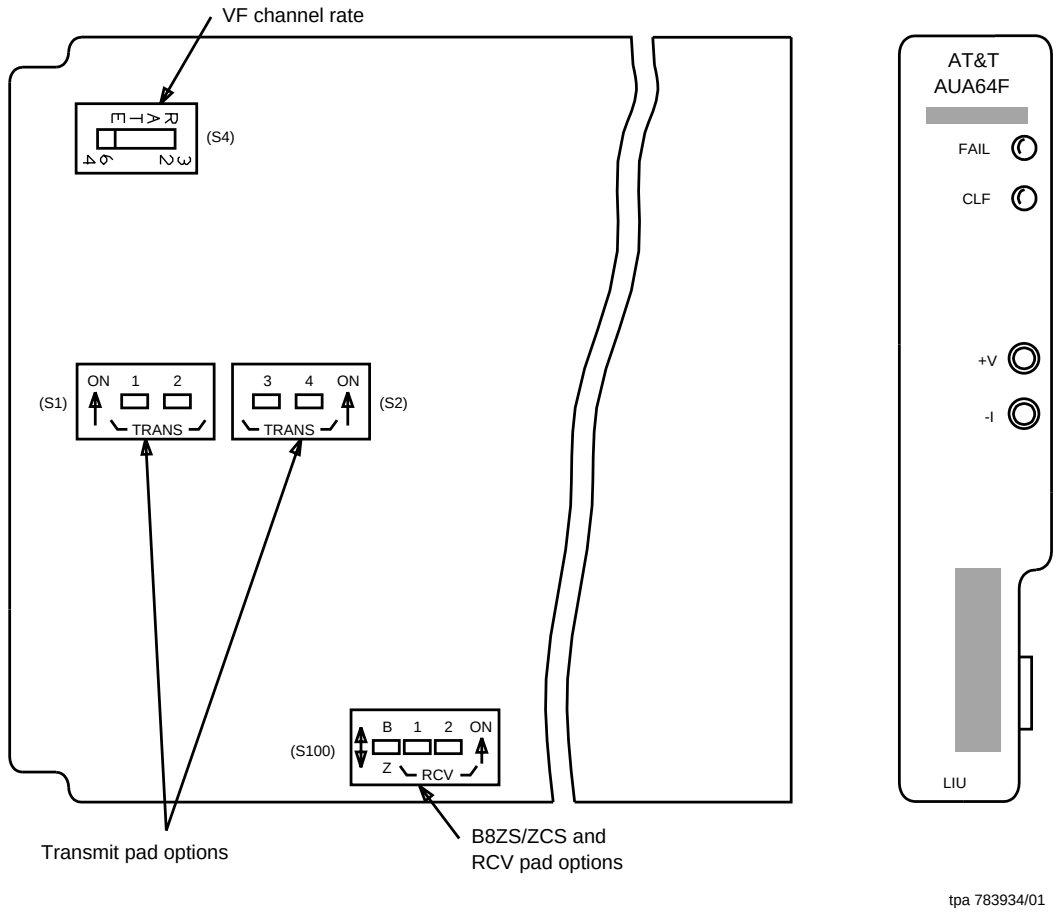

Figure 2. AUA64F Faceplate and Component Layout

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

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