SLC® Series 5 Carrier System

AUA141 4-Wire Special Services Channel Unit — 5SCU7DZ

This data sheet describes the AUA141 4-wire channel unit (CU) (COMCODE 106018401) and is intended for the end-user of the unit. The AUA141 CU is a current feed (CF) unit and is intended for use in nonlocally-switched ground- and loop-start special services, nonswitched private lines, and PBX tie trunks. For any of the function modes and depending upon application, the AUA141 CU may be used in the remote terminal (RT) or the central office terminal (COT). It may interface with a switching machine, other transmission equipment, data equipment, or cable. The AUA141 CU can be used in *SLC*® Series 5 Carrier Systems that support special services.

This data sheet is reissued to include information about the guidelines for option setting selection, unit compatibility, and applications.

Figure 1 is a functional block diagram of the unit, and Figure 2 shows the faceplate.

The AUA141 CU and the AUA41 4-wire CU (5SCU7D1) have the same functions, but the AUA141 has an extra level of protection against a power line being connected across the metallic leads. The AUA141 CU provides one channel of service and can function in any of three modes.

a. Foreign exchange - station end (4FXS) — The 4FXS function is used in nonlocally-switched loop- or ground-start applications. Typical applications are foreign exchange trunks and lines and off-premises PBX stations. These applications are generally 2-wire at each end. Therefore, when the AUA141 CU is used in the circuit, additional equipment must be used for the 4- to 2-wire conversions at the circuit ends.

b. Duplex (4DX) — The primary application of the 4DX function is in PBX tie trunks. For this application, the unit is used at the RT if the RT faces cable. (Additional equipment at the customer location provides the DX to E&M conversion.) If the RT is at the customer location, the AUA54 4-wire CU (5SCU7B0), which provides an E&M interface, should be used instead. In either case, the AUA141 CU can be used at the COT, either to face cable or a 4DX unit in an interoffice or loop carrier system. The AUA54 can also be used at the COT, although it requires the installation of an ED-7C700-30 E&M wiring harness to connect out the E&M leads.

c. Transmission only (4TO) or equalized transmission only (4ETO) — Both the 4TO and 4ETO functions are used in private lines (voice or data). The 4ETO function is used when equalization of cable transmission characteristics is required. Otherwise, the 4TO function is used. Sealing current is provided for both the 4TO and 4ETO functions.

For the 4FXS, 4DX, and 4ETO functions, the unit may be used with up to 15 dB of nonloaded or loaded cable. When the unit is used in the RT, it will almost always face cable that conforms to the carrier serving area (CSA) design rules. The loss of CSA cable is much less than 15 dB. The CSA design rules are described in AT&T 363-205-100.

The AUA141 CU has options which must be set before service can be provided. All options for the CU are set by entering commands into the *SLC* Series 5 craft interface unit (CIU) (J99404TA) which then transmits the settings to the bank control unit (BCU) which stores them in nonvolatile memory. The BCU then writes the settings into memory registers on the CU when the CU is installed. If the CU is already installed, the BCU writes the settings into the CU registers immediately after it receives them from the CIU. Unplugging the CU does not erase the CU settings stored in system memory. Reinserting the CU causes the settings to be rewritten immediately into the CU memory registers by the BCU.

The CIU is also used during manual testing of the transmission performance of the AUA141 CU. The procedures for setting options and performing tests with the CIU are described in AT&T 363-205-402. The CIU is described in AT&T 363-205-101.

Table 1 lists the options for each of the AUA141 CU functions. The guidelines for selecting option settings for the AUA141 CU are provided in AT&T 915-710-116 that also describes the various applications for the unit.

Table 1. Options for Each AUA141 Channel Unit Function

Option	Channel Unit Function			
	4FXS	4DX	4TO	4ETO
Function code	✓	✓	✓	✓
Transmit attenuator	✓	✓	✓	✓
Receive attenuator	✓	✓	✓	✓
Equalizer nonloaded/loaded *	✓	✓		✓
Equalizer slope *	✓	✓		✓
Equalizer bandwidth *	✓	✓		✓
Equalizer height *	✓	✓		✓
Transmit and receive impedance	✓	✓		✓
–7 dB (J3)				✓
–7 dB transmit			✓	
–7 dB receive			✓	

* Adjustable equalization is provided for the transmit direction only (for post-equalization of the cable transmission characteristics).

Table 2 lists the range of settings for each of the options, and Table 3 lists the AUA141 CU function codes.

Table 2. Range of Settings for AUA141 Channel Unit Options

Option	Range
Function code	See Table 3
Transmit attenuator	0 dB to 16.5 dB in steps of 0.1 dB
Receive attenuator	0 dB to 16.5 dB in steps of 0.1 dB
Equalizer nonloaded/loaded	N or L
Equalizer slope	0 to 15 in steps of 1
Equalizer bandwidth	0 to 15 in steps of 1
Equalizer height	0 to 15 in steps of 1
Transmit and receive impedance *	150, 600, or 1200 ohms
–7 dB (J3) †	White or Black
–7 dB Transmit ‡	White or Black
–7 dB Receive §	White or Black

* This option is automatically set to 600 ohms for the 4TO function of the channel unit.

† This option is used only for the 4ETO function of the channel unit. Changing the setting from BLACK to WHITE increases the attenuation in the transmit direction by 7 dB.

‡ This option is used only for the 4TO function of the channel unit. Changing the setting from WHITE to BLACK increases the attenuation in the transmit direction by 7 dB.

§ This option is used only for the 4TO function of the channel unit. Changing the setting from WHITE to BLACK increases the attenuation in the receive direction by 7 dB.

Table 3. AUA141 Channel Unit Function Codes

Function Code	CU Function	Signaling Mode
FXS1	4FXS	Loop-start signaling Signaling leads normal * No toll diversion capability
FXT1	4FXS	Loop-start signaling Signaling leads normal Toll diversion capability
FXS2	4FXS	Loop-start signaling Signaling leads reversed † No toll diversion capability
FXT2	4FXS	Loop-start signaling Signaling leads reversed Toll diversion capability
FXS3	4FXS	Ground-start signaling Signaling leads normal No toll diversion capability
FXT3	4FXS	Ground-start signaling Signaling leads normal Toll diversion capability
FXS5	4FXS	Ground-start signaling Signaling leads reversed No toll diversion capability
FXT5	4FXS	Ground-start signaling Signaling leads reversed Toll diversion capability
DX4N	4DX	Duplex signaling Signaling leads normal
DX4R	4DX	Duplex signaling Signaling leads reversed
TO4	4TO	Transmission only No DC signaling
ETO4	4ETO	Equalized transmission only No DC signaling

* Tip signaling lead connected to T-R, ring signaling lead connected to T1-R1.

† Ring signaling lead connected to T-R, tip signaling lead connected to T1-R1.

The AUA141 CU uses only the odd-numbered channel associated with a physical plug-in slot. Option settings for an AUA141 CU should not be specified for an even-numbered channel.

The AUA141 CU is end-to-end compatible with the AUA141, AUA41 (5SCU7D1), AUA54 (5SCU7B0), and AUA44 (5SCU7C6) 4-wire CUs, the AUA42 (5SCU690), AUA142 (5SCU69Z), and AUA43 (5SCU6A6) 2-wire CUs, and with various D4-type CUs. Further compatibility and application information can be found in AT&T 915-710-116.

For the FXS and DX functions, the CU permanently selects the 2.5-second delayed busy option on trunk processing (for example, 2.5 seconds after receipt of a carrier line failure indication from the *SLC* Series 5 Carrier System, the CU will busy out the service).

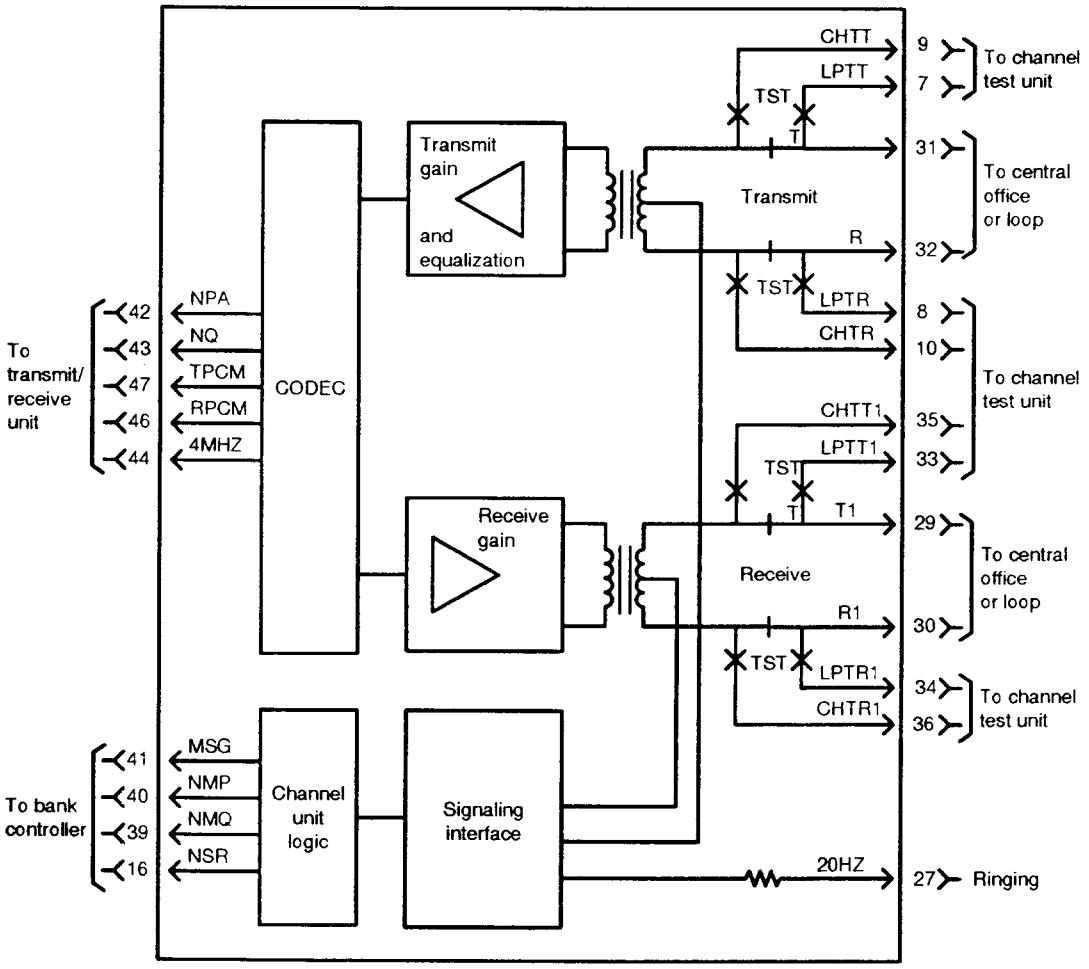

Figure 1. AUA141 Block Diagram

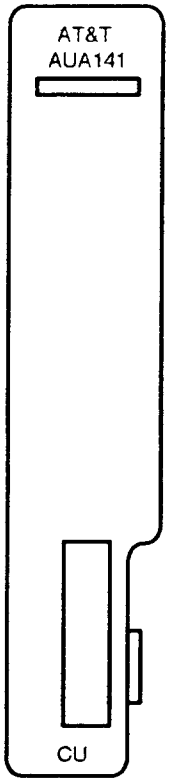

Figure 2. AUA141 Faceplate Diagram

In-hours or emergency out-of-hours technical assistance for the *SLC* Series 5 Carrier System can be obtained by calling the Regional Technical Assistance Center at **1-800-225-RTAC.**

Additional copies of this document (AT&T 363-005-300) are available from the Customer Information Center — call 1-800-432-6600.

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