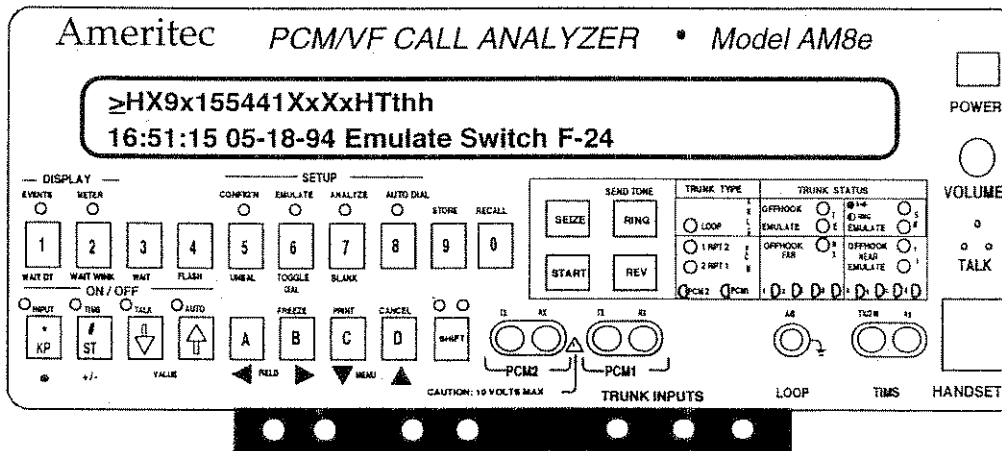
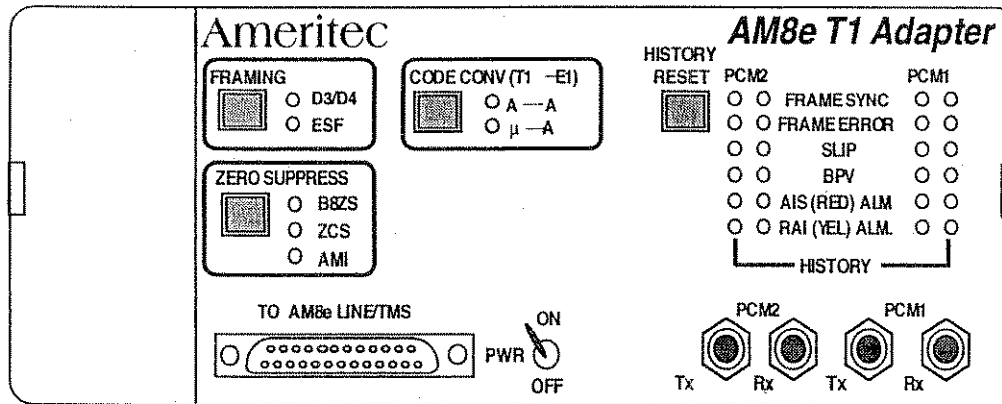


# Model 300071 AM8e T1 Adapter

(Used with Model AM8e PCM/VF Call Analyzer)

## Instruction Manual



Ameritec  
CORPORATION



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## 1. INTRODUCTION

This manual is intended for use with the Ameritec AM8e T1 Adapter (P/N 30-0071). This manual should be used in conjunction with the AM8e PCM/VF Call Analyzer Instruction Manual (P/N 18-0035), and the AM8e Protocol Table Development Guide (P/N 18-0040).

This manual is divided into two major sub-sections, as listed in the Table of Contents. This first section ("1. INTRODUCTION") provides an overview of the AM8e VF Call Analyzer, AM8e T1 Adapter and Protocol Table Development Guide; all of which are of fundamental importance to the instructions in this manual.

The second section ("2. OPERATION OF THE T1 ADAPTER") describes the Model 30-0071 AM8e T1 Adapter, its front panel, connections, setting up operating conditions and remote commands.

A Table of Contents and an Index to subjects are at the beginning of this manual.



## 1.2 AM8e T1 Adapter

The 30-0071 AM8e T1 Adapter is designed to replace the front cover (or "Lid") of the AM8e Call Analyzer. The illustration on the cover of this manual shows both units as they would be set up for use.

NOTE: For brevity, the Model 30-0071 AM8e T1 Adapter will be referred to as the "T1 Adapter".

The T1 Adapter is electrically connected to the AM8e Call Analyzer via a ribbon cable from the "TO AM8e LINE/TIMS" connector on its front panel to the LINE/TIMS connector on the rear panel of the AM8e Call Analyzer. All power, PCM1, PCM2 input and output connections between the T1 Adapter and the AM8e Call Analyzer are via this connector.

The interfaces between the 1.544 Mbps T1 spans are via bantam jacks on the front panel of the T1 Adapter.

Functionally, the T1 Adapter converts (or "maps") the 24 signaling and data channels of two 1.544 Mbps T1 spans (PCM1 and PCM2) to the first 24 signaling and data channels of the 2.048 Mbps PCM1 and PCM2 Rx and Tx interfaces on the AM8e Call Analyzer. It also provides conversion between A-law and  $\mu$ -law speech encoding.

**Note:** Channels 25 through 30 are not accessible and are used for control communication between the T1 Adapter and the AM8e Call Analyzer.





## 2. OPERATION OF THE T1 ADAPTER

### 2.1 Front Panel Controls and Indicators

Figure 1 shows the front panel of the T1 adapter. The following sub-sections describe the controls and indicators.

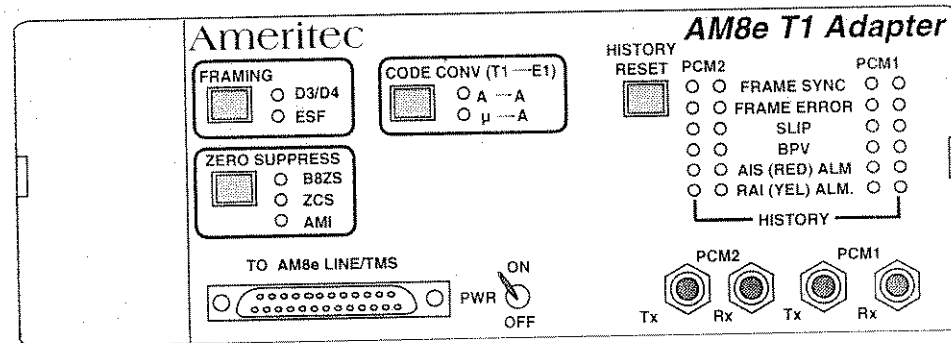


Figure 2-1. Model 30-0071 AM8e T1 Adapter Front Panel

#### 2.1.1 PWR ON OFF — Power ON/OFF Switch:

This switch allows you to turn the power on and off.

**Note:** Power (+16V) is provided by the AM8e Call Analyzer which must also be turned ON. The cable between the AM8e Call Analyzer and the T1 Adapter must also have been connected (Refer to 2.2.1).



## 2.1.4 PCM1 and PCM2 indicators— Active Status of PCM Signals

A series of six LEDs indicate the current status of the T1 PCM signals. These LEDs are on either side of the labels for the various conditions indicated.

- FRAME SYNC:** This LED is lighted until the T1 has synchronized to the received data stream. When synchronization is achieved, the LED goes off.
- FRAME ERROR:** This LED is lighted when the T1 Adapter detects four errors in the frame bit pattern. If there is no error encountered for five seconds, the LED will turn off.
- SLIP:** This LED is lighted when the T1 adapter detects a slip condition. A slip is commonly due to buffer overflow or underflow of the network equipment. If there is no slip encountered for five seconds, the LED will turn off.
- BPV:** This LED is lighted when the T1 Adapter detects 256 or more bipolar violations. If there is no BPV for five seconds, the LED will turn off.
- AIS (RED) ALM:** This LED is lighted when the T1 Adapter detects an "All-Ones-Signals" RED alarm condition or detects two frames of all-ones and an out-of-frame condition. The LED remains while the condition exists.
- RAI (YEL) ALM:** This LED is lighted when the T1 Adapter detects a "Remote Alarm Indication" YELLOW alarm condition or detects a sequence of eight one's and eight zeroes in the Facility Data Link bit position. The LED remains lighted while the condition exists.



## 2.2 Connection to the AM8e Call Analyzer

### 2.2.1 TO AM8e LINE/TIMS — AM8e Interface Connection

This is a DB-25 male connector, shown in Figure 1, where the 25-pin female connector of Cable 48015600 (supplied with the unit) is connected.

The other end of this cable has a 24-pin ribbon connector which connects to the LINE/TIMS connector on the rear panel of the AM8e Call Analyzer. The signals used by the T1 Adapter are as shown in Figure 2 (pin numbers at the AM8e Call Analyzer and the T1 Adapter connectors are also shown)

SIGNAL	AM8e	Adapter	SIGNAL	AM8e	Adapter
PCM2-R1	1	1	LID-R1	9	5
PCM2-T1	2	14	LID-T1	10	18
PCM2-R	3	2	LID-R	11	6
PCM2-T	4	15	LID-T	12	19
PCM1-R1	5	3	Gnd	21	11
PCM1-T1	6	16	Gnd	22	24
PCM1-R	7	4	+16 V Power	23	12
PCM1-T	8	17	+16 V Power	24	25

Table 2-1, Signal Connections

**Caution:** Power should be turned OFF on the AM8e before making this connection.

**Caution:** When using the LINE/TIMS connector as a connection point from the AM8e Call Analyzer to the C.O. for PCM or LOOP signals (when not using the T1 Adapter), BE SURE THAT PINS 23 and 24 are NOT connected to C.O. ground.



3. Turn ON the AM8e Call Analyzer and the T1 Adapter. LED indicators should indicate the settings for FRAMING and ZERO SUPPRESS. The FRAME SYNC indicator also will be lighted until the unit synchronizes to the incoming (Rx) T1 signal.
4. Set FRAMING and ZERO SUPPRESS on the T1 Adapter to match the characteristics of the T1 equipment under test (refer to 2.1.2 and 2.1.3).

**Note:** The ESF Framing standard allows all signalling bits to be zeroes; however, the AM8e Call Analyzer will not synchronize to an ESF Framed signal with all signaling bits equal to zero after conversion to E1.

5. Make the PCM1 and (if used) the PCM2 Rx and Tx connections between the labelled jacks on the T1 Adapter and the T1 equipment. For emulation by the AM8e Call Analyzer, disconnect through-connections (if not done by test jacks) at the CO. For monitoring, leave the connections in place.

**NOTES:**

- a. When the AM8e Call Analyzer is to monitor the signal, it is expecting the Master clock via the signal connected to the PCM1 Rx jack on the T1 Adapter. The signal for the opposite direction must be connected to the PCM2 Rx jack on the T1 Adapter.
- b. For further guidance to making Emulate or Repeat (Drop and Insert) connections refer to Figure A-6 in the AM8e Call Analyzer Instruction Manual, and substitute the PCM1 and PCM2 jacks on the T1 Adapter for those shown on the AM8e Call Analyzer. Internal channels are limited to 1 - 24 rather than 1-30.





## 2.5 Remote Control of T1 Adapter

The T1 Adapter may be configured directly through the use of the front panel FRAMING, ZERO SUPPRESS and HISTORY RESET and CODE CONVersion switches or remotely through a terminal connected to the AM8e Call Analyzer's RS232 port. A command is used for setting each switch and another command is used to read the conditions that have been set up.

### 2.5.1 Remote Setup ((ADP=xyz) command)

Each T1 Adapter switch can be set remotely through the use of the following command:

(ADP=xyz)      x must be 2 for T1 Adapter  
                   y = switch  
                   z = switch selection as shown below:

if y	then z
0 = framing	0 = d3/d4 1 = esf
1 = zero suppress	0 = b8zs 1 = zcs 2 = ami
2 = code conversion	0 = A → A 1 = μ → A
3 = history reset	0 - 9 (don't care)

As an example, the following commands would select ESF framing, AMI Zero suppression, conversion between μ-law and A-law encoding and reset the history LEDs.

(ADP=201)(ADP=212)(ADP=221)(ADP=230)



### 3. TECHNICAL SPECIFICATIONS

#### 3.1 Line Interface

##### 3.1.1 T1 (PCM1 and/or PCM2)

- 1.544 Mbps Pulse Code Modulation (PCM)
- Emulation and Monitoring of User Protocol Definable circuit type (Protocol selected in AM8e)
- Two span ports provided to support drop and insert channel (Repeat selections in AM8e)
- Framing D3/D4, ESF
- Zero Suppression: AMI, B8ZS, ZCS
- Digital Channel Coding:  $\mu$ law, A-law
- Impedance: 100  $\Omega$  at 1.544 Mbps BiPolar PCM (860  $\Omega$  padded cables supplied for monitor mode)



### 3.1.3 E1 PCM1 and/or PCM2

Conforms and connects to the Line interface specifications of the AM8e obtained through the Line/Tims connector on the rear panel of the AM8e.

#### 3.1.3.1 General

- Size: 8.3" W x 3.5" H x 2.35"D
- Weight: 13 ounces
- Operating Temperature: 0° to 50° c
- Humidity: 10 to 90% non-condensing
- Power Requirements: +16 V obtained at pins 12 and 25 of the 25 pin adapter connector from pins 23 and 24 of the 24 pin AM8e Line/Tims connector



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