MODEL 500R

8 CHANNEL DIGITAL RECORD/PLAYBACK (DRP) CARD

The Model 500R is a component of the IED 500 Series Announcement Control System. It is an 8-Channel Digital Record/Playback card with up to 131 seconds of recording time per channel. There is no time limit on live announcements or prerecorded messages. The 500R is capable of playing 8 announcements or messages simultaneously. Prerecorded messages can be played on any of the eight output channels.

The 500R mounts in the 500M/ME Mainframe through which it also receives power. The 500R receives audio signals from the 500C card via a 20-conductor ribbon cable. Background music and 20 kHz test tones are introduced through the 500RT Interface Card mounted on the rear of the mainframe. The audio signals are digitized and stored in DRAM. The 500R includes an audio detector circuit which causes an announcement to be terminated and deleted if no audio is detected for 5 seconds. If the message is ended normally (microphone or announce switch released), it is played back under CPU (Central Processing Unit) control. When an announcement or message is played back, the digitized signal is converted back to analog format and is output through a 20-pin ribbon cable which connects to the 500D card.

If a message is to be stored permanently, it is transmitted to the 500P Hard Drive Card or the 510CPU Processor Card in digital format via a bidirectional parallel port through a 26-conductor ribbon cable. Conversely, permanent messages are retrieved from the hard drive in digital form through the parallel port, converted to analog, and are output to the 500D Card.

Instructions from the CPU of the ACS (located on the 500CPU or 510CPU card) are sent to the 500R card where they are received and interpreted by the local MPU (Micro Processor Unit).

The normal sampling rate is 16 kHz which results in an 7.2 kHz bandwidth, but it can be increased up to 48 kHz resulting in a 21.6 kHz bandwidth. Digital processing and storage are performed in 16-bit mode.

Each of the 8 channels has an input gain of 0 - 22.5 dB adjustable in 1.5 dB steps. Each of the 8 channels has an output attenuation of 0 - 94.5 dB adjustable in 1.5 dB steps. Gain and attenuation control are adjusted under software control.

There are 8 tricolor LEDs mounted on the front edge of the card, one per channel. When the channel is being used to record or load, its LED is red. When the channel is playing back or saving to the 500P Hard Drive card, the LED is green. When in bypass mode (passing through a live announcement) the LED is yellow.

There are two additional LEDs mounted on the front edge of the 500R card. A green LED indicates that the local processor (MPU) is running. A red LED lights when the MPU is reset. Reset is accomplished, when necessary, by a front mounted momentary push switch.

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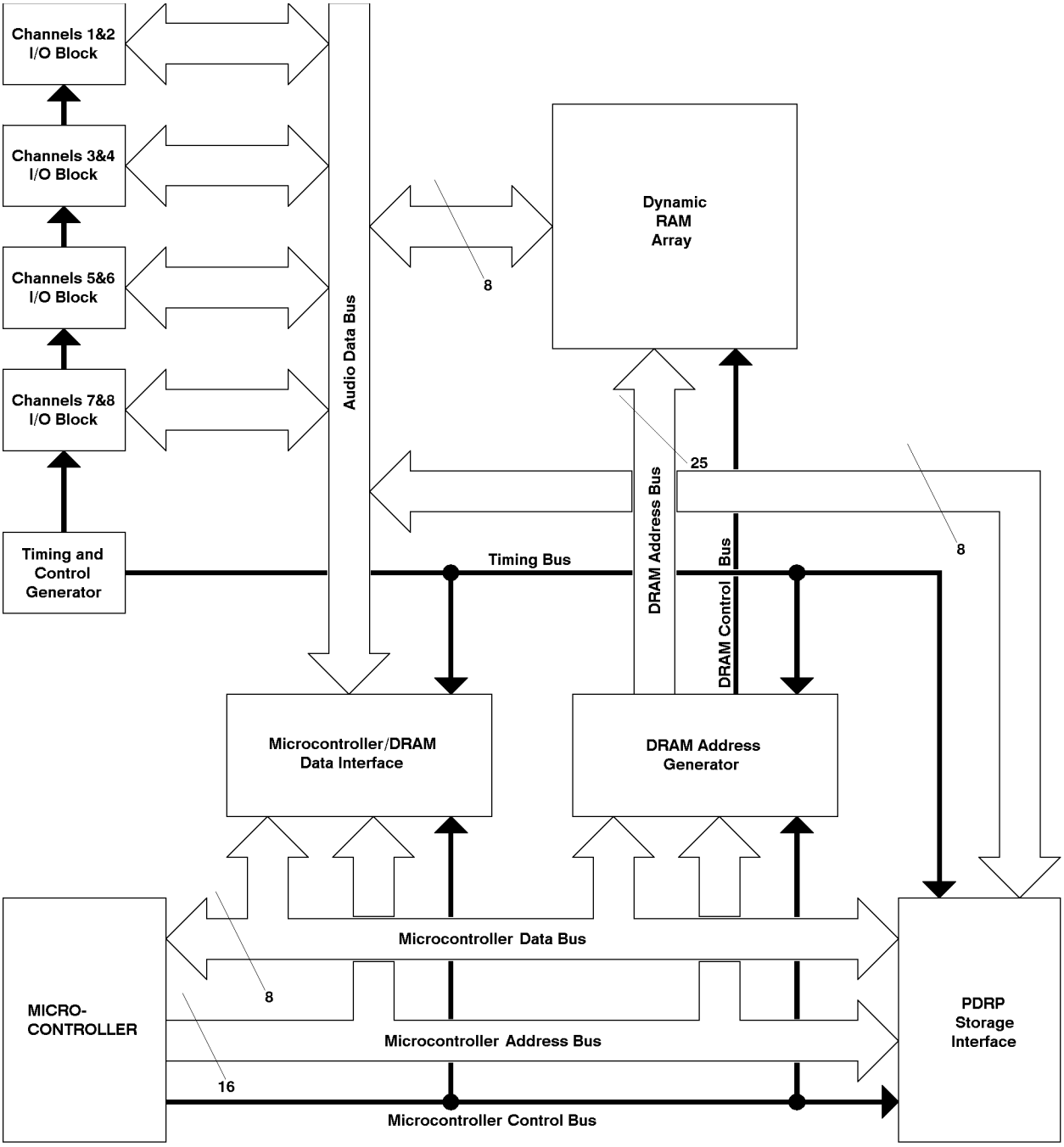

Figure 1 - 8 Channel Digital Record/Playback Card
Bolck Diagram

SPECIFICATIONS

ELECTRICAL, ANALOG

1. Frequency Response
   - 20 Hz . . . . . –1.75 dBr
   - 100 Hz . . . . . 0.0 dBr
   - 1 kHz . . . . . 0.0 dBr
   - 7.2 kHz . . . . . –3 dBr
2. Gain. . . . . Unity
3. Sampling Frequency . . . . . 16 kHz
3. Recording Time . . . . . 131 Seconds per channel
2. Total Harmonic Distortion, THD . . . . . <0.025%
   A Weighted
3. Intermodulation Distortion, IMD. . . . . <0.06%
   60 Hz/7 kHz
4. Signal-to-Noise Ratio, S/N . . . . . > 77 dBr
   Referenced to +8 dBu, A Weighted
5. Number of Channels In. 8
6. Number of Channels Out. 8
7. Maximum Input Level . . . . . +8 dBu
8. Maximum Output Level . . . . . +8 dBu
   R_L | 600 Ω
9. Power Supply
   - Supply Voltage Range
     - +15 V Supply . . . . . +14.25 V to +15.75 V
     - – 15 V Supply . . . . . –14.25 V to –15.75 V
     - +5 V Supply. . . . . +4.5 to +5.5 V
   - Supply current
     - V = +15 V
       - No audio input 50 mA
       - Audio input = 8 dB, unity gain, R_L = 600 Ω 80 mA
     - V= –15 V
       - No audio input 50 mA
       - Audio input = 8 dB, unity gain, R_L = 600 Ω 80 mA
     - V = +5 V . . . . . 2 A

CONTROLS

1. CPU Reset Switch . . . . . Momentary Push Switch

INDICATORS

1. 3-color LEDs, 1 per Channel (8 total)
   - Record . . . . . Red
   - Play . . . . . Green
   - Bypass. . . . . Yellow
2. Processor Running (1) . . . . . Green
3. Processor Reset (1) . . . . . Red

CONNECTORS

1. 20-pin male (2 per card) . . . . . AMP 499572-4
2. 26-pin male. . . . . AMP 499572-7

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MECHANICAL

1. Size (maximum overall dimensions as viewed from the front)
   - Height . . . . . (32.0 cm) 12.6"
   - Width . . . . . (2.79 cm) 1.10"
   - Depth . . . . . (23.5 cm) 9.25"
2. Weight . . . . . (644 gm) 1.42 lb

ENVIRONMENTAL

1. Operating Temperature Range . . . . . (+32 °F - +104 °F) 0 °C - +40 °C
2. Storage Temperature Range . . . . . (–40 °F - +158 °F) –40 °C - +70 °C

PIN	FUNCTION
1	20 kHz test tone
2	Background Music
3	Audio Ground
4	Bus #1 Out
5	Audio Ground
6	Bus #2 Out
7	Audio Ground
8	Bus #3 Out
9	Audio Ground
10	Bus #4 Out
11	Audio Ground
12	Bus #5 Out
13	Audio Ground
14	Bus #6 Out
15	Audio Ground
16	Bus #7 Out
17	Audio Ground
18	Bus #8 Out
19	Audio Ground
20	Audio Ground

Table 1 - Connector P3
Pin Connections
Audio Output to 500D Card

PIN	FUNCTION
1	No Connection
2	No Connection
3	Audio Ground
4	Bus #1 In
5	Audio Ground
6	Bus #2 In
7	Audio Ground
8	Bus #3 In
9	Audio Ground
10	Bus #4 In
11	Audio Ground
12	Bus #5 In
13	Audio Ground
14	Bus #6 In
15	Audio Ground
16	Bus #7 In
17	Audio Ground
18	Bus #8 In
19	Audio Ground
20	Audio Ground

Table 2 - Connector P4
Pin Connections
Audio Input from 500C Card

PIN	FUNCTION
1	Strobe’
2	No Connection
3	PMD0
4	No Connection
5	PMD1
6	No Connection
7	PMD2
8	No Connection
9	PMD3
10	Ground
11	PMD4
12	Ground
13	PMD5
14	Ground
15	PMD6
16	Ground
17	PMD7
18	Ground
19	Acknowledge’
20	Ground
21	Busy
22	Ground
23	No Connection
24	Ground
25	No Connection
26	No Connection

Table 3 - Connector P5
Pin Connections
Ribbon cable to standard Bidirectional Parallel Port

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