8044APM

AUDIO MUSIC/BUS PAGING CARD

The model 8044APM Audio Music/Bus Paging card is a component of the IED 8000 Series.

The 8044APM card has access to the 4 unbalanced audio busses as well as 4 balanced audio inputs wired from the rear screw terminals. See figure 1 for a block diagram of the system.

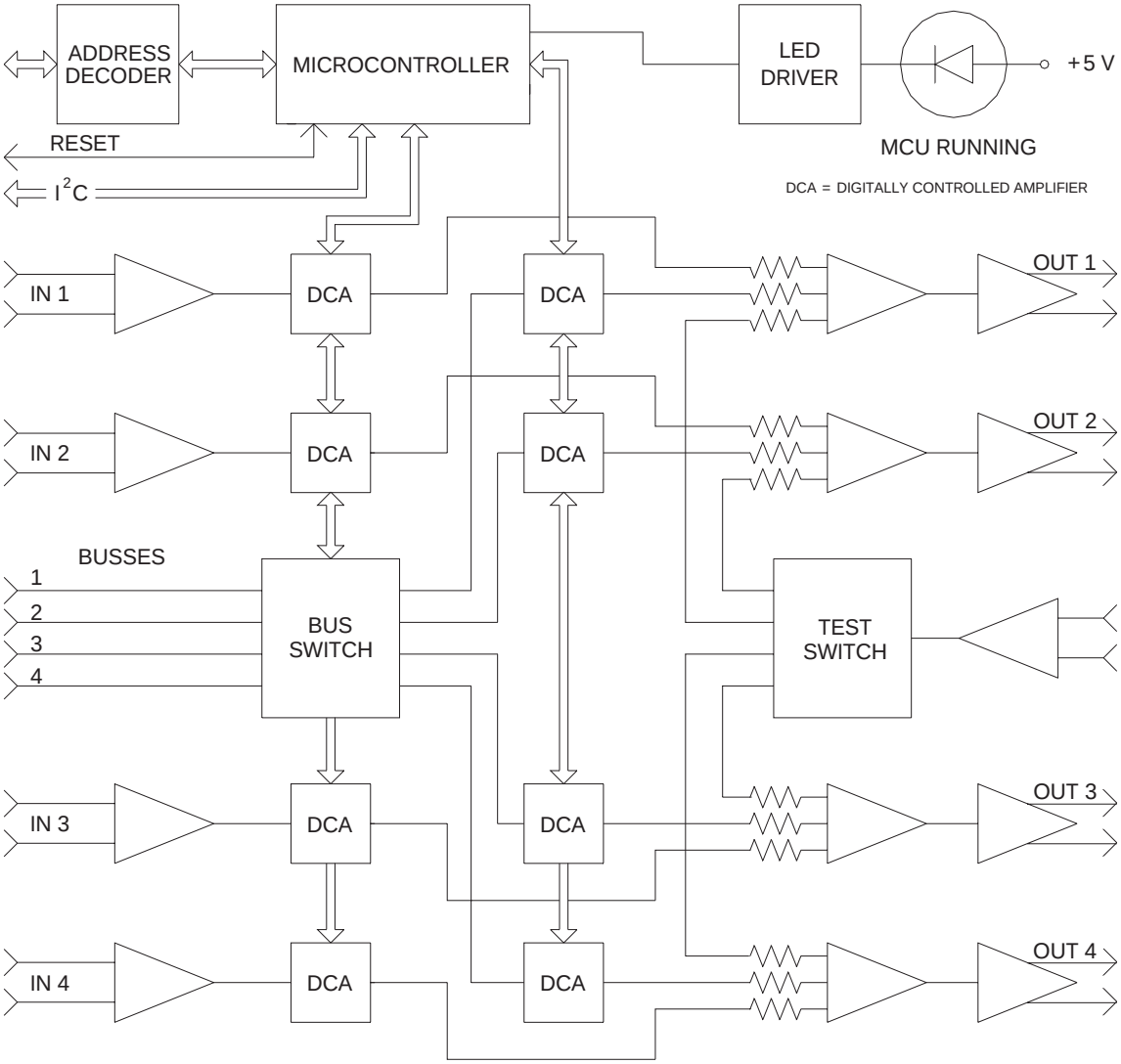

Figure 1 - 8044APM Block Diagram

Any of the 4 shared buses for paging can be switched to any of the outputs on the local card. Each of the four outputs has an individual gain control adjustment. The output gain control is adjustable in 0.5 dB steps, from 31.5 dB to 95.5 dB of attenuation. The software setup configures the gain for each output.

The 4 audio inputs sum directly to their corresponding outputs. They have separate digital gain controls for ducking, which adjust the music levels before they are summed into the corresponding output. Those gain controls are also adjustable in 0.5 dB steps from 31.5 dB to 95.5 dB of attenuation.

All switching is under software control. The four busses that run the length of the motherboard make it possible to source audio from other cards.

An Audio Test Signal Bus with a balanced input is switched under software control to any output. The test tone will check the outputs and the MCU. This feature is used in conjunction with 8081MT cards and and the 8001SA card to test audio points in the system with the with the 8000 Monitor/Test System. This feature also allows test tones to be introduced into output zones for testing of amplifier and speaker lines downstream of this card.

The on-board microcontroller communicates with the 8001CPU and the 8001SA through an I^2C bus on the motherboard. A reset line from the motherboard allows the 8001CPU to reset the MCU.

A green LED located on the front edge of the card is illuminated when the MCU is running.

SPECIFICATIONS Electrical, Analog, Vs = +15 V, DCA gain set to +6 dB

1. Frequency Response . . . . . +0, –0.2 dB
   20 Hz - 20 kHz
2. Total Harmonic Distortion, THD . . . . . <0.1%
   20 Hz - 20 kHz, 30 kHz filter, +4 dBu
3. Intermodulation Distortion . . . . . <0.03%
   60 Hz,/7 kHz
4. Signal-to Noise Ratio, S/N. . . . . >90 dB
   Referenced to +4 dBu, 20 - 20 kHz filters
5. Crosstalk . . . . . <–70 dB
   20 Hz - 20 kHz
6. DCA Control
   - Range. . . . . 127 dB
   - Steps . . . . . 0.5 dB
   - Card Max. Gain . . . . . 25.5 dB
   - Card Max. Attenuation . . . . . 105.5 dB
7. Maximum Input Level . . . . . +18 dBu
8. Maximum Output Level . . . . . +18 dBu
   R_L ∫ 600 τ
9. Input Impedance . . . . . ∫ 24 kτ
   Audio inputs
10. Output Impedance . . . . . ®50 τ
    Audio outputs
11. 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
    - Supply current
      - V= +15 V
        - No audio input . . . . . 100 mA
        - Audio input = 18 dB, unity gain, R_L = 600 τ . . . . . 105 mA
      - V= –15 V
        - No audio input . . . . . 83 mA
        - Audio input = 18 dB, unity gain, R_L = 600 τ . . . . . 90 mA

INDICATORS

1. MCU running . . . . . Green LED

CONNECTORS

1. 32-pin Euro Connector, male, right-angle (2 each). . . Hirose PCN10-32P-2.54DS

MECHANICAL

1. Size (maximum overall dimensions as viewed from the front)
   - Height. . . . . (11.43 cm) 4.50"
   - Width. . . . . (2.03 cm) 0.80"
   - Depth . . . . . (20.42 cm) 8.04"
2. Weight . . . . . (162 gm) 0.358 lb

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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	PIN	FUNCTION
1	No Connection	17	No Connection
2	No Connection	18	No Connection
3	No Connection	19	No Connection
4	No Connection	20	No Connection
5	No Connection	21	No Connection
6	Ground	22	Ground
7	+30 V External Supply In	23	+30 V External Supply In
8	Ground	24	Ground
9	Ground	25	Ground
10	Control 4 In +	26	Control 4 In –
11	Control 4 Shield	27	Control 3 Shield
12	Control 3 In +	28	Control 3 In –
13	Ground	29	Ground
14	Control 2 In +	30	Control 2 –
15	Control 2 Shield	31	Control 1 Shield
16	Control 1 +	32	Control 1 In –

Table 1 - Pin Connections, Upper Euro Connector

PIN	FUNCTION	PIN	FUNCTION
1	Address Line 4	17	Address Line 3
2	Address Line 2	18	Address Line 1
3	Address Line 0	19	I^2C Bus Interrupt Line (Inverted)
4	I^2C Serial Data	20	I^2C Serial Clock
5	+5 V	21	Master Reset Line
6	–15 V	22	–15 V
7	+15 V	23	+15 V
8	Spare 2	24	Spare 3
9	Ground	25	Ground
10	Ground	26	Ground
11	Ground	27	Ground
12	Audio Test Bus +	28	Audio Test Bus –
13	Audio Monitor Bus +	29	Audio Monitor Bus –
14	Audio Test Signal Bus +	30	Audio Test Signal Bus –
15	Internal Audio Routing Bus 2	31	Internal Audio Routing Bus 1
16	Internal Audio Routing Bus 3	32	Internal Audio Routing Bus 4

Table 2 - Pin Connections, Lower Euro Connector

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