MODEL 8022CEQ

ANALOG CONSTANT Q EQUALIZER CARD

The Model 8022CEQ Analog Constant Q Equalizer Card is a component of the IED 8000 Series™. It is a 2-channel, 26 band, constant Q, 1/3 octave equalizer with 2 selectable high pass filters.

EQ1 can be connected to input channels 1 or 3, but not both, by the use of jumpers. It can be connected to output channels 1 and/or 3. EQ2 can be connected to input channels 2 or 4, but not both, by the use of jumpers. It can be connected to output channels 2 and/or 4. Both the inputs and outputs are electronically balanced.

The card has an on-board microcontroller (MCU) that sets up the EQ and wire wrap pins for high pass filter selection. Each channel has 26 bands of constant Q, 1/3 octave EQ with 10 dB of cut and boost in 1/2 dB resolution. Each channel has two high pass filters (80 Hz and 125 Hz). The 80 Hz high pass filter has a 12 dB/octave slope, 125 Hz high pass filter has a slope of 12 dB/ octave from 125 Hz to 80 Hz, and a slope of 24 dB/octave below 80 Hz. See Table 1 for 1/3 octave and high pass filter frequencies.

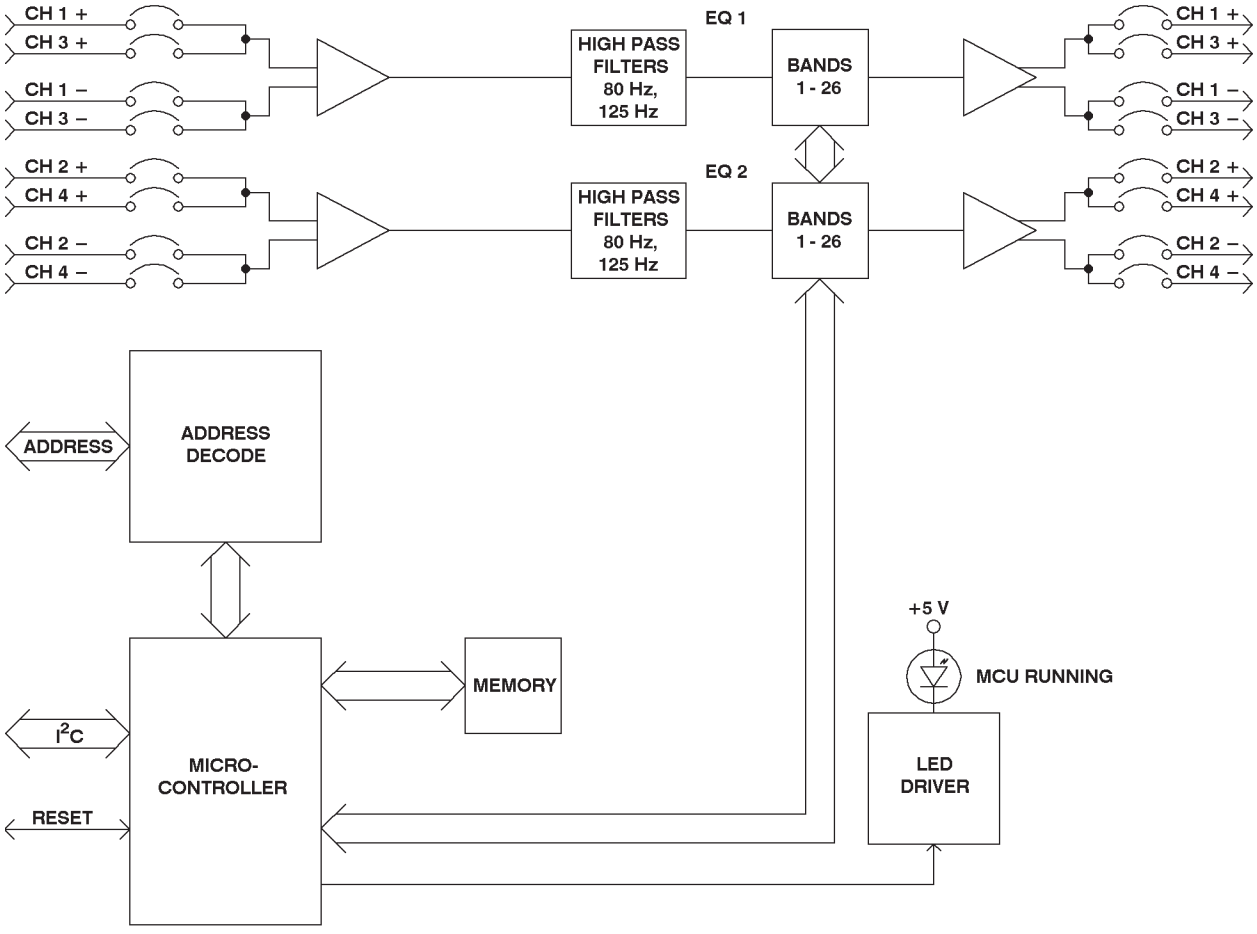

Figure 1 - 8022AEQ Analog Equalizer Card Block Diagram

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The card has on-board non-volatile memory that can store EQ setups. It can store up to 7 curves per channel. The MCU communicates with the 8001CPU via an I^2C bus on the mother board. A reset line on the mother board allows the 8001CPU to reset the MPU.

1/3 OCTAVE BANDS PLUS SHELVING FREQUENCIES			
80 Hz High Pass Filter	160 Hz	800	4 kHz
125 Hz High Pass Filter	200 Hz	1 kHz	5 kHz
50 Hz	250 Hz	1.25 kHz	6.3 kHz
63 Hz	315 Hz	1.6 kHz	8 kHz
80 Hz	400 Hz	2 kHz	10 kHz
100 Hz	500 Hz	2.5 kHz	12.5 kHz
125 Hz	630 Hz	3.15 kHz	16 kHz

Table 1 - 1/3 Octave Bands
Center and High Pass Filter Frequencies

SPECIFICATIONS

ELECTRICAL, ANALOG, EQ Set Flat

1. Frequency Response . . . . . +0, –0.2 dB
   20 Hz - 20 kHz
2. Total Harmonic Distortion, THD . . . . . <0.03%
   20 Hz - 20 kHz, 16 Hz - 80 kHz filters
3. Intermodulation Distortion, IMD . . . . . <0.03%
   60 Hz/7 kHz
4. Signal-to-Noise Ratio, S/N . . . . . >85 dB
   Referenced to +4 dBu, 20 Hz - 22 kHz filters
5. Cross Talk . . . . . <–70 dB
   Between EQ channels, 20 Hz - 20 kHz
6. Maximum Input Level . . . . . +18 dBu
7. Maximum Output Level . . . . . +18 dBu
   R_L = 600 Ω
8. EQ Control Steps, each 1/3 octave band . . . . . 1/2 dB
9. Maximum cut and boost . . . . . 10 dB
10. 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 . . . . . 180 mA
    V= –15 V . . . . . 170 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 . . . . . (217 gm) 0.48 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

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PIN	FUNCTION	PIN	FUNCTION
1	CH 4 OUT +	17	CH 4 OUT –
2	CH 3 SHIELD	18	CH 4 SHIELD
3	CH 3 OUT +	19	CH 3 OUT –
4	GROUND	20	GROUND
5	CH 2 OUT +	21	CH 2 OUT –
6	CH 1 SHIELD	22	CH 2 SHIELD
7	CH 1 OUT +	23	CH 1 SHIELD
8	GROUND	24	GROUND
9	GROUND	25	GROUND
10	CH 4 IN +	26	CH 4 IN –
11	CH 4 SHIELD	27	CH 3 SHIELD
12	CH 3 IN +	28	CH 3 IN –
13	GROUND	29	GROUND
14	CH 2 IN +	30	CH 2 IN –
15	CH 2 SHIELD	31	CH 1 SHIELD
16	CH 1 IN +	32	CH 1 IN –

Table 2 - 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 3 - Pin Connections, Lower Euro Connector