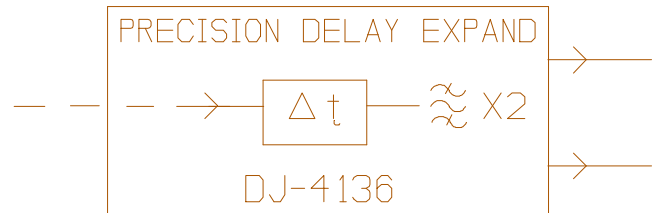


DESCRIPTION

The DJ-4136 Precision Audio Delay Expand module corrects disturbing comb-filter effects caused by the physical separation of radiators in a loudspeaker array. The DJ-4136 provides two independent delayed outputs, each selectable in 3.9 microsecond steps to 256 milliseconds maximum. Dynamic range exceeds 100dB, eliminating excessive residual noise. Frequency and power response extend to 20 kHz. The DJ-4136 is ideal for synchronizing main clusters and shadowed areas where naturalness and intelligibility are desired. Optional user-specified low-pass, pass-band, or high-pass output filters enable individual radiators within a given frequency band to be individually delay corrected, multi-way systems to be delay corrected at crossover, or short throw/long throw radiator overlap patterns to be delay corrected. Optional preset memories allow multiple cluster locations to correct listener perception of unique sound source positions for various venue reconfigurations while retaining their distinct precision delay compensation. The DJ-4136 is digitally linked to the DJ-4135, the DJ-4139, or the DJ-4132, providing additional precision resolution outputs with no noise accumulation. For extended digital delay duration see the DJ-4134 data sheet.

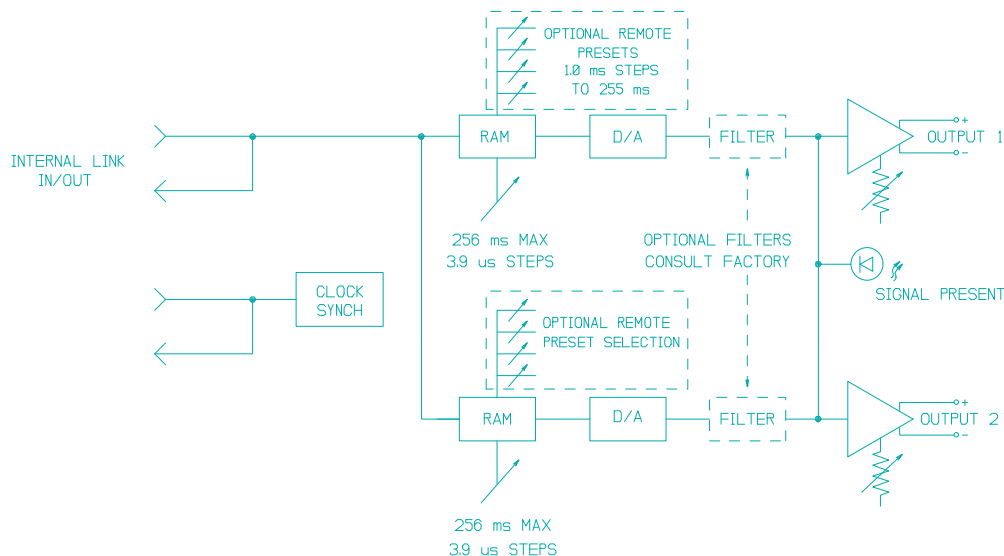
DESIGN SYMBOL



FEATURES

- Delay correction for clusters/multi-way/overlap systems
- 2 precision delayed outputs
- Adjustable in 3.9 microsecond steps to 256 milliseconds
- 20 kHz bandwidth
- Greater than 100dB dynamic range
- Digital output and delay expansion (no noise accumulation)
- Output level controls
- Active balanced outputs
- Signal present LED
- Optional 24dB/octave Linkwitz-Riley output filters
- Optional filters implement crossover function after delay
- Optional (1 millisecond step) preset memories for room reconfiguration

FUNCTIONAL DIAGRAM



OPERATION

The DJ-4136 receives an audio single-bit digital signal from a DJ-4135, DJ-4139, or DJ-4132 at 2.048 MHz. The digital signal is stored in dynamic random access memory (DRAM) for the delay required. The delayed digital signal is then reconverted for the audio output. To provide the 100dB dynamic range necessary for quality sound systems to be free from residual noise, a proprietary digital/analog converter is used. This results in a wider signal dynamic range for quality audio delay and reduction in the no-signal residual noise. Optional 24dB/octave Linkwitz-Riley low-pass, pass-band, or high-pass output filters allow the DJ-4136 to implement a crossover function after the precision delay adjustments. Optional preset memories enable multiple cluster locations to track various unique room configurations of microphone and stage placement, etc. while retaining distinct precision delay compensation for each cluster (1.0 millisecond steps on presets are added to the 3.9 microsecond resolution precision adjustments). Digital bit-stream linking of modules provides for expanding outputs or extending the delay setting without accumulating A/D/A conversion noise.

SPECIFICATIONS

| | |
|-------------------------------|---|
| DIGITAL INPUT | Internal: 2.048 MHz Data/8.192 MHz clock |
| LINE OUTPUTS | Standard <i>SYSTEM 41</i> active balanced |
| Impedance | 200Ω, for 600Ω or greater load |
| Maximum Output | +19dBV, unloaded |
| OUTPUT GAIN | Adjustable; attenuate only, 0dB maximum |
| FREQUENCY RESPONSE* | +0dB, -3.0dB |
| THD + NOISE* | 0.1% @ 1 kHz/0dBV |
| NOISE* | Less than -83dBV, 0dB output atten.; -93dBV, -10dB output atten. |
| DYNAMIC RANGE* | Greater than 100dB |
| DELAY | Adjustable in 3.9 μs steps to 256 ms maximum |
| TRANSIT TIME | Retains 24 μs (A/D/A delay) from analog input to analog output |
| OPTIONAL OUTPUT FILTERS | 24dB/octave; Linkwitz-Riley; user specified frequencies for low-pass; pass-band; or high-pass response |
| OPTIONAL DELAY PRESETS | Four memory settings of 1.0 ms - 255 ms (in 1.0 ms steps) add to the precision adjustment (3.9 μs - 996 μs) |
| CURRENT CONSUMPTION | 90 mA |
| MODULE SPACE | One Unit, 1.20 inches |

* Measured over a 20 Hz - 20 kHz bandwidth

ARCHITECT'S SPECIFICATIONS

The Precision Audio Delay Expand shall provide two independent outputs, each selectable in 3.9 microsecond steps to 256 milliseconds maximum. Delay settings for each output shall be adjusted by four 16-position switches. Each switch shall provide 15 steps of additive delay, with switch increments of 3.9 microseconds, 62.5 microseconds, 1.0 millisecond, and 16 milliseconds respectively. A digital link shall prevent noise accumulation and provide for expanding the number of outputs and/or extending the maximum delay duration. Outputs shall be active balanced with level controls provided. The output signal shall be monitored by a signal present green LED. Frequency response shall be 20 Hz to 20 kHz +0, -3dB. Noise shall be less than -83dBV measured with an unweighted 20 kHz filter. The Precision Audio Delay Expand shall mount in and be powered by the IRP model DJ-4100, DJ-4101, or DJ-4150 mainframe. The Precision Audio Delay Expand shall be the IRP DJ-4136.

OUTPUT FILTERS - OPTION 1: The precision delay outputs shall be furnished with 24dB/octave Linkwitz-Riley response filters and implement a combined Precision Delay/Crossover function. Low pass, pass-band, or high-pass turnover frequencies shall be provided for the respective outputs.

REMOTE SELECTION OF PRESET DELAY - OPTION 2: Four different settings of 1.0 millisecond and 16 millisecond incremental delay adjustments for each output shall be stored. The total delay duration shall be the additive delay of the remotely selected preset plus the settings for the 3.9 microsecond and 62.5 microsecond incremental adjustments. A remote contact closure shall select one of the four stored presets. Non-volatile rotary switch positions shall be used as the memory for the preset delay values.

ORDERING INFORMATION

Specify: DJ-4136 Precision Audio Delay Expand
DJ-4136-1 Precision Audio Delay Expand with Output Filters (specify low-pass, pass-band, or high-pass filters and frequencies)
DJ-4136-2 Precision Audio Delay Expand with Remote Preset Delay
DJ-4136-12 Precision Audio Delay Expand with Output Filters and Remote Preset Delay (specify filters)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation