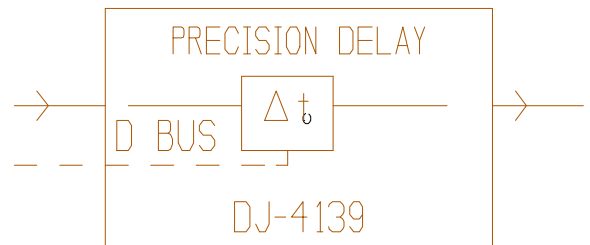


DESCRIPTION

The DJ-4139 Precision Audio Signal Delay corrects disturbing comb-filter effects caused by the physical separation of radiators in a loudspeaker array. The DJ-4139 provides one delayed output, 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-4139 is ideal for synchronizing main clusters and shadowed areas where naturalness and intelligibility are desired. For digital delay extension see the DJ-4134 Data Sheet.

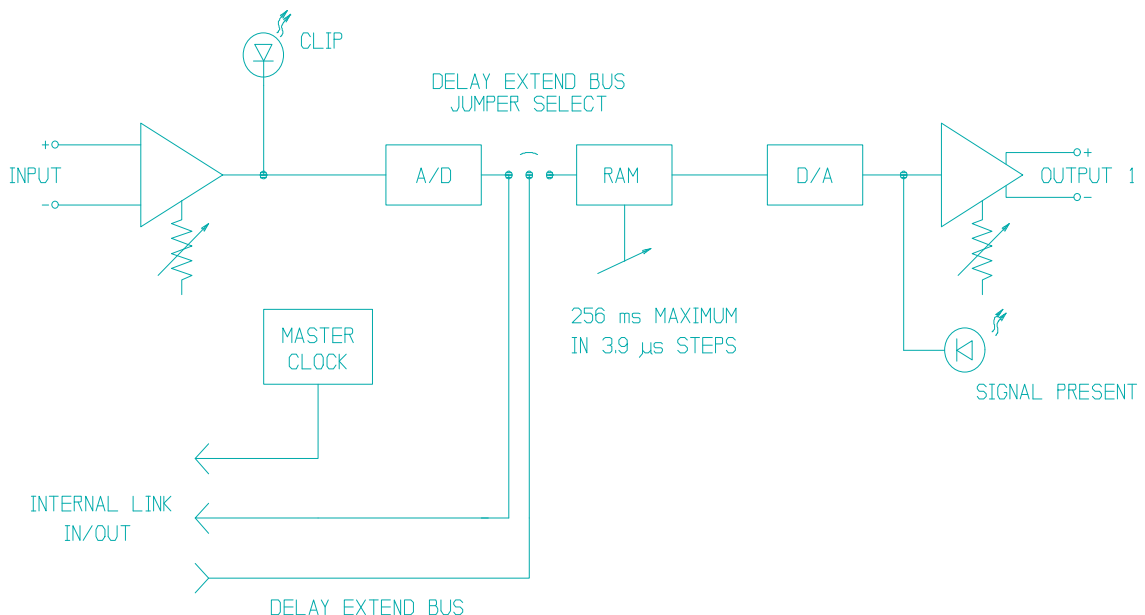
DESIGN SYMBOL



FEATURES

- Signal alignment correction for loudspeaker clusters
- Adjustable in 3.9 μ s steps to 256 ms
- Greater than 100dB dynamic range
- 20 kHz bandwidth
- Digital output and delay expansion (no noise accumulation)
- Input and output level controls
- Clip and signal present LED s
- Active balanced input and outputs

FUNCTIONAL DIAGRAM



OPERATION

The DJ-4139 converts the audio input into a single bit digital stream 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 analog/digital/analog converter was developed. In addition to using a high (2.048 MHz) sample rate which eliminates the need for sharp input and output bandlimiting filters, the DJ-4139 internally adjusts the coarseness of the digital approximation to the audio input signal. Using this method, lower audio levels are digitized with finer digital steps thereby improving the Signal-to-Noise ratio at lower signal levels. This results in a wider signal dynamic range for quality audio delay and reduction in the no signal residual noise. Digital bit- stream linking of modules provides for expanding outputs or extending the delay settings without accumulating A/D/A conversion noise.

SPECIFICATIONS

LINE INPUT	Standard System 41 active balanced
Impedance	82k Ω balanced, 41k Ω unbalanced
Maximum Input	+ 19dBV
LINE OUTPUT	Standard System 41 active balanced
Impedance	200 Ω for 600 Ω or greater load
Maximum Output	+ 19dBV, unloaded
INPUT GAIN	Adjustable; 0dB nominal, + 10dB maximum
OUTPUT GAIN	Adjustable; attenuate only, 0dB maximum
OVERALL GAIN	0dB nominal, + 10dB maximum
FREQUENCY RESPONSE*	+ 0dB, -3.0dB
THD + NOISE*	0.1% @ 1 kHz/0dBV
NOISE*	Less than -83dBV, 0dB output attenuation; -93dBV, -10dB output attenuation
DYNAMIC RANGE*	Greater than 100dB
DELAY	Adjustable in 3.9 μ s steps to 256 ms maximum
STABILITY	0.01%
CURRENT CONSUMPTION	90 mA
MODULE SPACE	One unit, 1.2 inches

* Measured over a 20 Hz - 20 kHz bandwidth

ARCHITECT'S SPECIFICATIONS

The Precision Audio Signal Delay shall provide one output, selectable in 3.9 μ s steps to 256 ms maximum. The Delay setting shall be adjusted by four 16-position switches. Each switch shall provide 15 steps of additive delay, with switch increments of 3.9 μ s, 62.5 μ s, 1.0 ms, and 16 ms respectively. A digital link shall prevent noise accumulation and provide for expanding the number of outputs and/or extending the maximum delay duration. Input and output shall be active balanced with level controls provided. A red LED shall indicate onset of clipping. 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 \hat{E} -83dBV measured with an unweighted 20 kHz filter. The Precision Audio Signal Delay shall mount in and be powered by the IRP model DJ-4100, DJ-4101, or DJ-4150 mainframe. The Precision Audio Signal Delay shall be the IRP DJ-4139.

ORDERING INFORMATION

Specify: Precision Audio Signal Delay DJ-4139, 1 input/1 output

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