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# NASA TECH BRIEF

## *Manned Spacecraft Center*



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### **Multifunction Audio Digitizer for Communications Systems**

An audio digitizer that accomplishes both "N" bit PCM and delta modulation has been developed for use in advanced communication systems. It was designed specifically for audio application and provides modulation indicating variable signal gain, and variable sidetone.

The digitizer has no frequency-dependent parameters or components and consists of an active device count of four dual-in-line packages for the minimum standards and resolution of four bit PCM. The system can easily be increased to eight bits PCM by the addition of another four bit counter and a different D to A convertor.

Other features of the digitizer include: a lower package count than most PCM or delta modulation systems; a clock rate that may be varied to optimize bandwidth, and a PCM output that can easily be expanded without major circuit modification.

This circuit is applicable as a building block for advanced communications systems. It represents a simplified audio modulation technique and should be of interest to manufacturers of data communication equipment.

#### **Note:**

Requests for further information may be directed to:

The Technology Utilization Officer  
Manned Spacecraft Center, Code JM7  
Houston, Texas 77058  
Reference: TSP71-10318

#### **Patent status:**

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