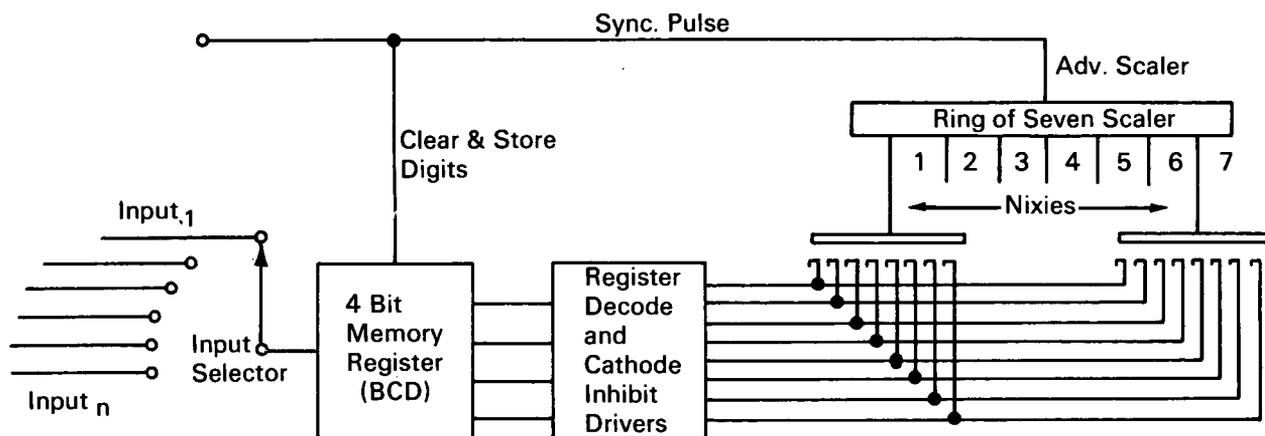


AEC-NASA TECH BRIEF



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Nixie Tube Display Unit Employs Time-Shared Logic



The problem:

To achieve input switching simplification of a Nixie tube display system. In conventional readout devices, Nixie display tubes are connected so all anodes of all tubes are continuously energized. Events are channeled to the particular Nixie display unit for portrayal. This method requires that each Nixie unit have all of its cathodes individually wired to the event generator, resulting in cluttered circuitry.

The solution:

Wire the cathodes of the display tubes in parallel. Use time-shared logic to energize the appropriate anode and inhibit all unnecessary cathodes.

How it's done:

The system consists of an anode scaler ring, a 4-bit memory register, a master pulse generator, and cathode inhibit circuits. All of the corresponding numeric cathodes of seven display tubes are connected in parallel. The anodes are connected to a seven scaler ring which turns each anode on for 140 microseconds, stepping each anode through the ring and

repeating the sequence indefinitely. A scaler output consists of an endlessly repeating train of 28 serial bits (7 digits \times 4 bits per digit). The cathodes are returned to ground through a circuit which can inhibit any unneeded element as determined by the digit stored in a 4-bit memory register. A synchronization pulse from the master pulse generator causes the memory register to store and clear the digits in phase with the advance of the anode scaler. This arrangement makes it possible to display seven decades of data by serially reading the individual digits into the memory register and synchronizing the anode scaler advance to correspond to the digit being read.

Notes:

1. The resulting display repetition rate of approximately 1000 cps completely eliminates visible flicker, while the intensity appears comparable to normal operation. The device provides substantial component savings over full-time parallel systems, while achieving input-switching simplification.

(continued overleaf)

2. The device has been operating for 2½ years and has required no maintenance.
3. Inquiries concerning this innovation may be directed to:

Office of Industrial Cooperation
Argonne National Laboratory
9700 S. Cass Avenue
Argonne, Illinois 60439
Reference: B66-10512

Patent status:

Inquiries about obtaining rights for commercial use of this innovation may be made to:

Mr. George H. Lee, Chief
Chicago Patent Group
U.S. Atomic Energy Commission
Chicago Operations Office
9800 S. Cass Avenue
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(ARG-117)