

Easy scanning for gas-discharge display panel

In the new *TD 700* desktop display terminal, Burroughs is using a new type of gas-discharge display, known as 'self-scan', which simplifies the addressing electronics functions by incorporating the access function within the display panel itself.

The basic panel consists of 112 columns of seven glow cavities each. One column is used for panel reset and is not visible from the display side of the panel. This area is sufficient to display 18 characters in a 5x7-dot matrix with one column of space between characters. The 5x7-dot matrix is ideal for most applications because it enables all alphabetical and numerical characters to be presented.

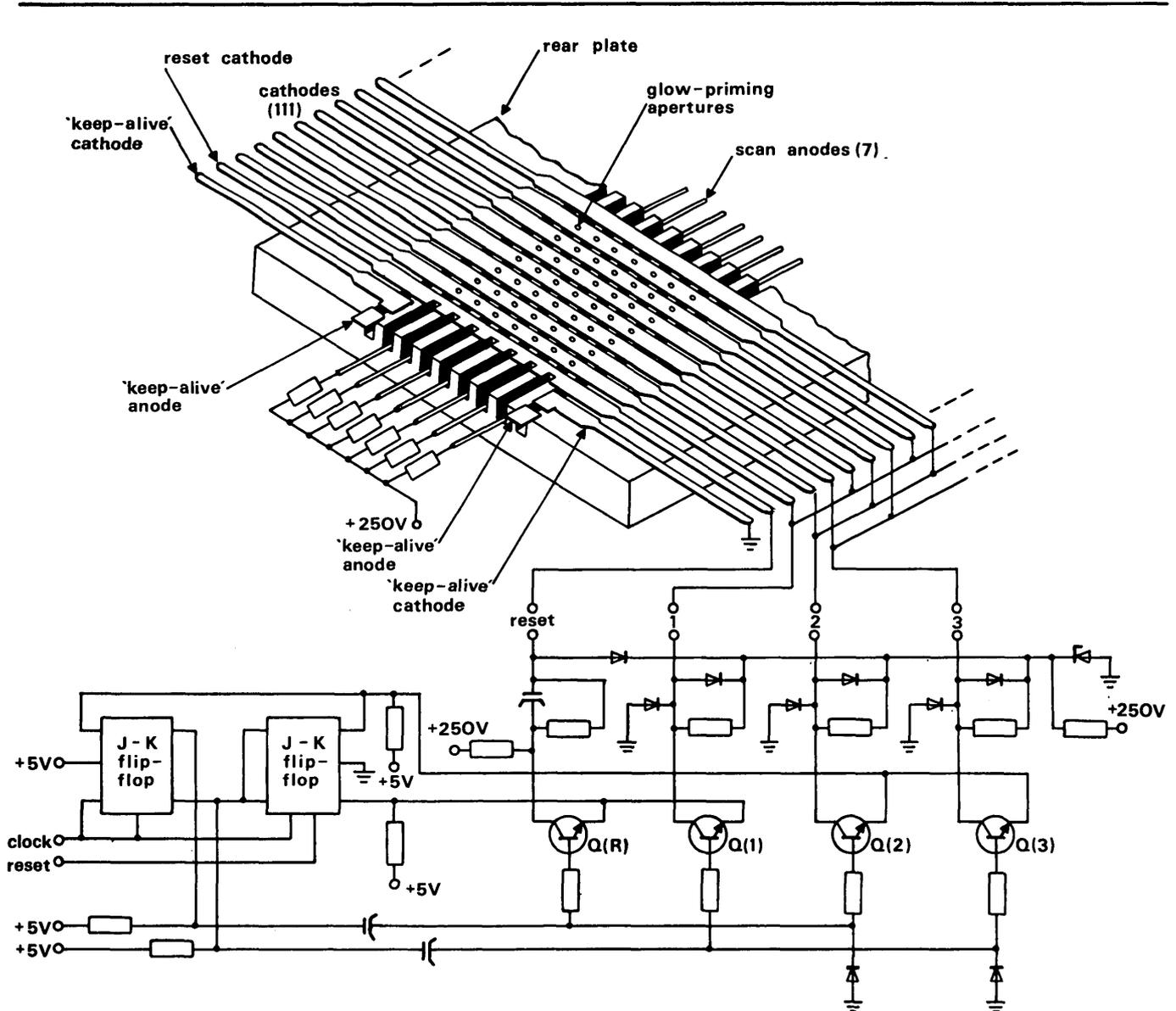
The panel consists of three basic sections: the 'glow-scan' section, consisting of the scan anodes and the rear side of the cathode strips; the 'glow-priming' section consisting of laser-drilled holes in the cathode strips; and the 'glow-display' section consisting of the display anodes,

the centre insulating sheet containing the display cavities and the front side of the cathode strips. The structure is hermetically sealed in a common envelope filled with gas (mostly neon).

Three discharge phenomena combine to produce the display. Glow scan is the phenomenon whereby the glow is established at the back of the reset cathode and is transferred sequentially down the entire length of the panel at a rate of about 60Hz. This function is not visible from the viewing surface. The glow-priming phenomenon allows the glow to be drawn from the scan side of the panel to the viewing surface. The third phenomenon, glow display, is employed where front anodes are addressed as desired and a glow is established on the front of the cathodes in the display cavities so as to be visible from the viewing surface. The illustration shows a typical portion of the panel, together with the addressing electronics.

This type of panel has arrived on the market at a time when cathode-ray-tube displays are becoming increasingly used for computer outputs and light-emitting-diode displays are finding wide application in the digital-panel-meter field. The advantages of the 'self-scan' panel are that it gives the high-contrast readout of optoelectronics diodes without the fixed cost per digit; the character versatility of a cathode-ray tube without the bulk; and the slimness of other types of discharge panel without the costly addressing electronics.

Burroughs is already working on larger panels using this technique, and has recently announced a 256-position panel with eight rows of 32 characters each. Panels are already available with dots on 0.06in centres, and laboratory models have been built which provide variable intensity for the individual dots within a display and different colours and combinations of different colours in the same cell.



Typical portion of Burroughs's 'self-scan' panel, together with addressing electronics
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