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TENNECOMP TP-1402 DISPLAY SCOPE CONTROL

The TP-1402 Display Scope Control is designed to interface display scopes to the Digital Equipment Corp. Family-of-Eight Computers. The conventional type of display control for small computers transfers X and Y information from the accumulator of the computer to the display control. In order to maintain a high quality display (with, for example, several thousand points), a large fraction of the processing capability must be devoted to a program which continuously refreshes the display. The TP-1402 Display Scope Control allows the automatic display of a block of data from a core buffer relieving the computer program from the task of point-by-point display generator.

Digital information is transferred from the computer through the 3-cycle data break facility to the Y-deflection buffer in the control unit and converted to an analog signal in a 10-bit digital-to-analog converter. Upon initialization, the Y-deflection information and the intensity information are taken from sequential core locations. The X-coordinate may be initialized by the central processor and is automatically incremented after each point. The display control will accommodate scopes manufactured by Tennecomp, Hewlett Packard or Tektronix.

In addition to interfacing a display to the computer, the TP-1402 also has provisions for interfacing a light pen (such as the TP-1345). Circuitry is provided which produces a computer interrupt when the light pen sees a spot being illuminated on the display scope. In addition, the skip facility can be actuated by a switch on the light pen providing convenient writing capability with a "tracking cross."

SPECIFICATIONS:

* The Y information is taken from the lower order 10 bits of a word in the display buffer.

* Accuracy of X and Y deflection signals are at least .2% of full scale. The display system is capable of resolving at least 512 points plotted across the diagonal of the screen.

* The intensity information is taken from bits 0 and 1 of a word in the display buffer. Three intensities are provided in addition to off.

* Time required per point is 3 memory cycles, plus scope response time.

* Instructions are provided for:

  CLEAR AND LOAD the display X-axis buffer
  CLEAR all display flags
  SKIP on word count overflow flag
  SET the X-axis increment to 0, 1, 2, 4, 8, or 16 units
  ENABLE the display
  DISABLE the display

* Light pen instructions are provided for:

  CLEAR the light pen flag
  SKIP on light pen flag
  SKIP on pen down
  DISABLE the light pen from the interrupt system
  ENABLE the light pen to the interrupt system

  When the light pen is enabled to the interrupt system, a light pen hit sets the pen flag, disables the display sweep, and causes an interrupt level to be sent to the central processor.

  When the light pen is disabled from the interrupt system, a light pen hit sets the pen flag but does not disable the display sweep and does not cause an interrupt level to be applied to the processor interrupt request bus.

* Mounts in 19-inch relay rack. Requires 5 1/4 inches rack height.

* Power requirements: + 10 volts
  - 15 volts

* A similar model is available which utilizes the 4-cycle Data Channel of the PDP-9.

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