



## SELF-SCAN™ PANEL DISPLAY

The SELF-SCAN panel display is a significant advance in readout technology. Available with or without memory SELF-SCAN panel displays are available in alphanumeric and numeric models. The formed characters and flicker-free, high-contrast display make it easily readable in bright light or dark shadows. And because electronic drive circuitry has been reduced by as much as 90%, SELF-SCAN panel displays are the most economical displays for readouts with 8 to 400 characters of alphanumeric display.

### 16 or 18-POSITION ALPHANUMERIC SELF-SCAN PANEL DISPLAY MODEL SSD 1000-0030

The model SSD 1000-0030 SELF-SCAN panel display is a single row, 16 or 18-position display with a repertoire of 64 characters. Each character is displayed in a five-by-seven dot matrix format with two columns of space between each character on a 16 position display and one column of space between characters on an 18 position display. Each character is defined by a positive logic six bit code. The display is completely self-contained and packaged in a one piece, molded housing which encloses and supports the display panel.

The panel operates in a scanning mode, scanning from left to right, one full column at a time. Six or seven clock pulses must be provided, depending on the level of the count control input. The appropriate six bit code must be present during the first five clock pulses of each character position. After the last character is displayed, a reset pulse must be generated to initiate a new scan. A new scan may be initiated before the last character, at any time during the scan, by generating a reset pulse. This, however, must be done only on a low duty cycle basis. Generating the reset pulse prior to the last character position increases the duty cycle of the positions used, thereby changing their aging characteristics. When operating in this mode, the reset pulse must be held a minimum of  $2t_1$  us. The recommended method of displaying a reduced number of character positions is to supply the appropriate level to the blank disable input.

The following signals are required for proper operation:

**Data Inputs**—A six bit code must be present at the data input terminals during the first five clock pulses of each character position.

**Clock Input**—Seven clock pulses must be supplied for each character position for a 16 position display. Six clock pulses must be supplied for each character position for an 18 position display.

**Reset Input**—One reset pulse must be supplied after each complete scan or after the character to be displayed.

**Count Control Input**—This input determines whether

the display operates in a 16 or 18 position mode. Tying this input to VSS yields an 18 character display with one column of space between characters. Tying it to  $V_{CC}$  yields a 16 character display with two columns of space between characters.

**Blank Disable**—The blank disable input is a switch closure to ground. The display may be blanked at any time by opening this input.

### 16-POSITION ALPHANUMERIC SELF-SCAN PANEL DISPLAY WITH MEMORY MODEL SSD 1000-0040

The model SSD 1000-0040 SELF-SCAN panel display is a single row, sixteen position display with associated drive electronics, packaged in a housing with an integral bezel. The display has a repertoire of sixty four characters and contains a refresh memory. Each character is displayed in a five-by-seven dot matrix format with two columns of space between characters. Each character is defined by a positive logic six bit code.

The display operates in a scanning mode entering characters from left to right. The characters are entered sequentially. The appropriate six bit code must be present one full scan time for each entry. The display will continue in order, entering a total of 16 characters. Character number 17 will be entered in the display such that it replaces the first character on the left. The display may be cleared at any time during the 16 character cycle by presenting the appropriate signal at the clear line for one scan period.

The following signals are required for proper operation:

**Data Inputs**—A six bit code must be present at the data input terminal for a minimum of 20 ms after the initiation of the data present pulse for each display position.

**Data Present Pulse**—A data present pulse must be generated coincident with, or after the initiation of the data inputs.

**Clear Pulse**—A clear pulse must be present at the clear input and held for a minimum of 20 ms to clear the display.

ABCDEFGHIJKLMNOPQRSTUVWXYZ123456  
 7890@~( ) . = ! ? / % : ; , \* \$ " + - ! # & < > [ ]  
 SELF-SCAN\* PANEL DISPLAYS---MOST  
 SIGNIFICANT ADVANCE IN READOUT  
 TECHNOLOGY SINCE NIXIE\* TUBES  
 WERE DEVELOPED BY BURROUGHS.....  
 \*SELF-SCAN & NIXIE---TRADENMARKS  
 OF THE BURROUGHS CORPORATION

#### 16 POSITION NUMERIC SELF-SCAN PANEL DISPLAY WITH MEMORY MODEL SSD 1000-0020

The SSD1000-0020 SELF-SCAN panel display offers all the features of the numeric SSD1000-0010 panel plus includes a refresh memory. The unit requires the following signals for proper operation.

**DATA INPUTS**—A four bit code must be present at the data input terminal for at least 20ms after the initiation of the data present pulse.

**DATA PRESENT PULSE**—A data present pulse must be generated coincident with, or after the initiation of data inputs for each character position.

**CLEAR PULSE**—A clear pulse must be present at the clear input and held for 20 ms to clear the display.

The panel may be used to display less than the full sixteen characters by supplying a blank code for the undesired positions.

#### 256 POSITION SELF-SCAN PANEL DISPLAY SUBSYSTEM

The Burroughs SELF-SCAN panel display system concept is unique in that it allows the user to construct custom-tailored stand-alone communication terminals from "off-the-shelf" components. The SSPD (SELF-SCAN panel display) subsystem, introduced by Burroughs in 1969, is the heart of a terminal system. This subsystem, can be purchased as a basic subsystem for integration into existing terminal system design; can be purchased as a complete, packaged, stand-alone system; or, can be purchased at any level of complexity between the basic subsystem and complete stand-alone unit with options.

The inherent features of the SELF-SCAN panel display make it the ideal readout for terminal applications. Reduced electronics and a display panel thickness of less than 1/2 inch allow packaging of the display, and therefore the terminal in a compact enclosure. The Burroughs design features a free-moving display head which can be lowered for convenient portability and even removed from the keyboard for wall or remote installations.

The character format of the SELF-SCAN panel display subsystem is the popular 5 x 7 dot matrix pattern shown

above. There are two sizes of SSPD subsystems and systems. In the larger size the light emitting cavities that form the display matrix have a diameter of .024" and are on .040" centers, providing a character size of 0.18" wide by 0.26" tall. Two columns of dots (approximately 0.1") are employed as spacing between characters and three rows of dots separate the registers. The smaller panel display employs light emitting dots of 0.020" diameter on 0.030" centers. This arrangement provides a character 0.14" wide by 0.20" high. Like its companion panel this subsystem uses two columns of dots between characters and three rows of dots between registers. Both the 0.030" and 0.040" displays are arranged in 8 registers of 32 characters per register. The bright neon-orange characters, contrasted against the dark background, provide a comfortable display which can be read easily from distances up to 20 feet for the .030" panel and 25 feet for the .040" panel. The Burroughs 256 character SSPD subsystem and SSPD system provide all the advantages of comparable CRT displays without the cumbersome bulk and massive electronics associated with the CRT device.

The keyboard employed in the SELF-SCAN panel display system is similar to a standard electric typewriter keyboard both in layout and key pressure. The shift provision allows use of the full 64 character ASCII code. The keyboard is electronically interlocked so that if two keys are simultaneously depressed no code is emitted. A two key roll over feature is also employed to provide for rapid input of data for display. Transmission of the second code however does require the release of the first key. The keyboard is designed to allow an input rate of at least 80 wpm without data loss. In addition to the standard keyboard which includes the cursor control keys, controls are provided for other normal terminal functions such as power on, local control, transmit, receive, and end of test.

The basic system uses the half duplex asynchronous (RS-232C) method of transmission. This means that at any point in time the system can either transmit or receive data, but not both. In the basic system the method of communication linking the terminal to the central processor is polling and selection.