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OPERATION OF THE SECURITY DEMO BOARD

PURPOSE OF THE SECURITY DEMO BOARD

The Security Demo Board provides a means of visualizing the performance of the IPP3000 in an operating system. It displays a super-imposed halo around objects in motion (tracking data). The halo(s) and an alarm display provide an immediate evaluation of the tracking data quality. The board also demonstates the ease in which the tracking data could be transmitted on the common video line; it can easily be stripped off on the receiving end. An eight channel version, using only one IPP3000 and A/D Converter, could be transmitted on a single coaxial line. This could not easily be visually demonstrated; thus, the single channel version is provided for the demonstration.

STRUCTURE OF THE SECURITY DEMO BOARD

The board contains a Video A/D Converter (TMC22071), a Programmable Logic Device (PLD - EPM7064SLC44), an IPP3000 (PLD and IPP3000R), two RAM to support the IPP3000, a Video Multiplexer, and two timers.

1) The A/D Converter provides 6-bit digital video data to the IPP3000 and produces sync signals for timing controls.

2) The PLD converts the sync signals from the A/D to blanking signals used by the IPP3000. It also generates a serial bit stream at power-up to configure the A/D.

3) The IPP3000 produces the tracking data and controls the display of these data as well as an alarm indication (when applicable).

4) The RAM chips store digitized video data and store a reference image format which can be used to detect motion.

5) The Video Multiplexer operates under control of the IPP3000 to super-impose digital tracking data onto the analog video signal.

6) The timers provide power-up timing and timing of refresh of the reference image. This is provided every 12 seconds.

Security/Motion Demonstraton Block Diagram

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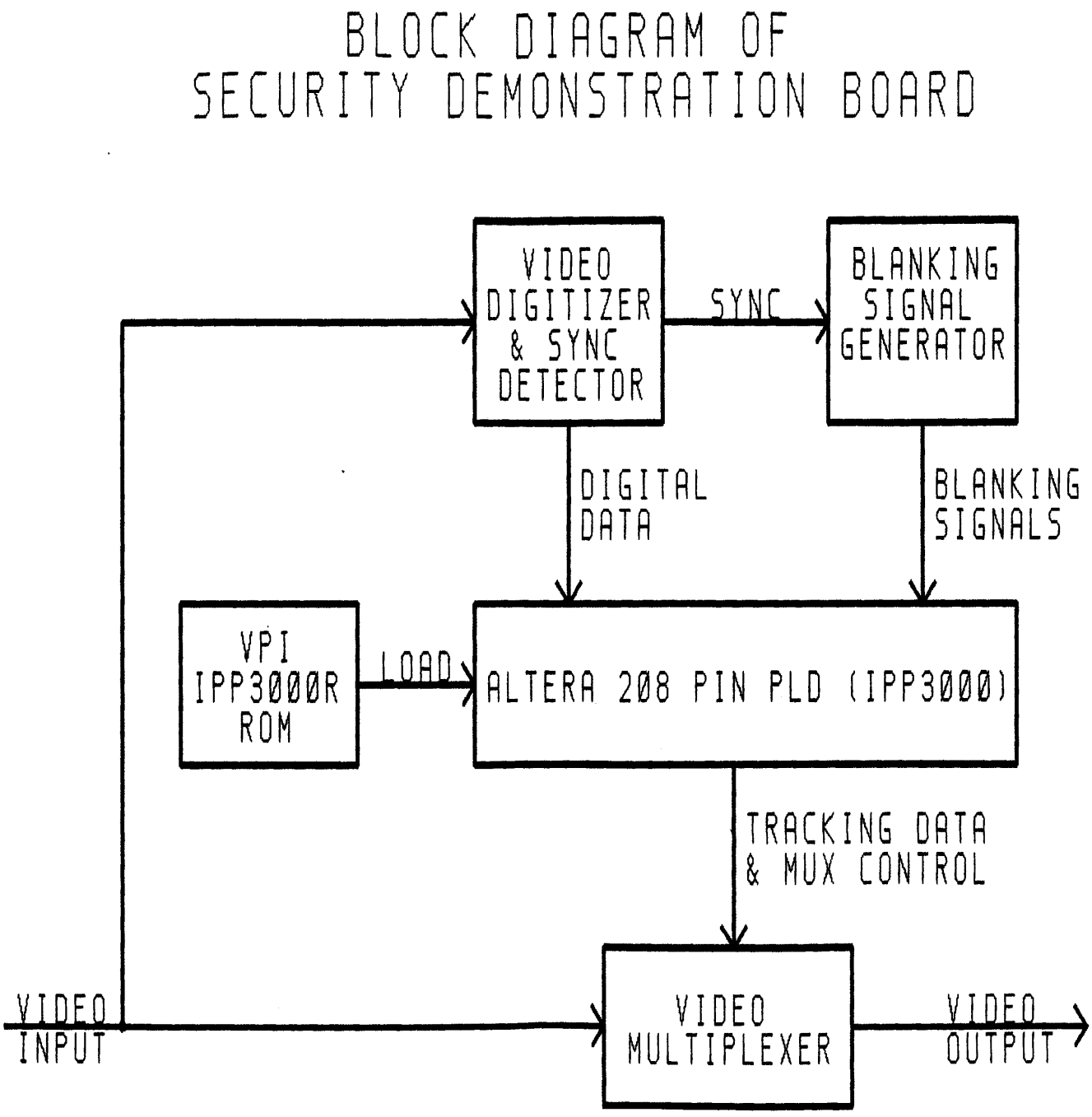

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OVERVIEW OF THE SELECTIONS AVAILABLE

The Security Demo Board provides for selection of the operating Mode, of the Threshold, and of the Tolerance.

1) **MODE** - The mode selection is between the ANY CHANGE operation and the NEW EDGE operation. A slide switch provides this selection.

   a) **ANY CHANGE** - All cells from the reference image are compared each frame to the real time image. Any change is counted and also displayed as tracking data.

   b) **NEW EDGE** - Only new conditions of edges of cells not containing edges in the reference image are counted and displayed as tracking data. This occurs each frame.

2) **THRESHOLD** - The Threshold is the sensitivity to shades-of-gray contrast used while processing the image. The 3-bit DIP switch provides eight selections as defined in Table I. This usually affects the number of tracking data displayed; therefore it should be considered when selecting Tolerance.

3) **TOLERANCE** - The Tolerance is the number of tracking cell indications permitted before the alarm condition is displayed. The 4-bit DIP switch provides 16 selections as defined in Table II. This switch does not affect the tracking data display. It determines the alarm detection sensitivity by size of the intrusion.

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TABLE I

THRESHOLD CONTROL
COMPARATOR DIFFERENCE
BEFORE CONTRAST DETECTION

BINARY THRESHOLD SWITCH SETTING	BINARY DIFFERENCE REQUIRED
000	000010
001	000100
010	000110
011 ← INITIAL SETTING	001000
100	001100
101	010000
110	011000
111	100000

TABLE II

TOLERANCE CONTROL
COUNTS REQUIRED
TO SET ALARM

BINARY TOLERANCE SWITCH SETTING	DECIMAL COUNTS TO ALARM
0000	5
0001	7
0010	9
0011	13
0100	21
0101	33
0110	49
0111 ← INITIAL SETTING	73
1000	113
1001	161
1010	257
1011	385
1100	577
1101	897
1110	1281
1111	1921