

## Letter Size, Digital Output 150 MHz, Analog Output 150 MHz

CE  
Upon request



- High-Speed Pattern Switching
- Built-in Color Still Picture

## LT 1610A PROGRAMMABLE VIDEO GENERATOR

## GENERAL

This group of two RGB generators offers dedicated analog, digital or combined analog/digital outputs to best suit application needs. Dot clock frequencies handle a wide range of applications ranging to SXGA (1200 x 1024). All in the group operate from user-replaceable ROMs making them ideal for production operations wherein parameters are not to be altered by operators. Remote control units (LT 1610-01B) extend program selection to remote control points and widen operator control to signal output conditions including sync format and polarities. Full PC control gives the operator complete control over raster architecture, signal-output conditions and selection from stock and custom patterns. Control extends to the graphic design of custom patterns and the downloading of images from digital still cameras or scanners. X-Y cursors permit the coordinates of defective pixels in the display to be accurately established and provision is made to test monitor power-saving actions spelled out in VESA standards. Fast image switching speeds production work by reducing the wait for new images to appear. Image sequencing may be programmed and scrolling window or character actions aid in gauging image decay characteristics. A factory option adds 2 MB of RAM to extend image memory to accommodate up to 6 VGA format images.

## FEATURES

- PC Programming and Control Operates in Windows Environment
- ROM Setup and Control for Stand-Alone Operations
- Both Analog and Digital RGB, Clock to 150 MHz/150 MHz
- Digital Outputs 8-Bit Parallel, Handles Most Flat-Panel Displays
- High Speed Switching Speeds Pattern Selection
- Power Saving Display Function as Specified in VESA Standards
- Graphic Design of Custom Test Patterns
- Stock Test Patterns Include SMPTE RP-133 & Flower Image
- X-Y Coordinates Locates Picture Faults
- Image Downloading from Scanners and Digital Cameras
- Accessories Provide LVDS Drive to LCD Panels
- Auto Pattern Switching and Scroll Gauge Image-Decay Characteristics

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## ■ LT 1610A Rear Panel



# SPECIFICATIONS

# LT 1610A

## Dot Clock Frequency

|   |   |
|---|---|
| <b>Analog:</b>                            | 1.024 - 150.000 MHz (10 ppm)  |
| <b>Digital 1/1 Clock Mode:</b>            | 1.024 - 75.000 MHz (10 ppm)   |
| <b>Digital 1/2 Clock Mode:</b>            | 2.048 - 150.000 MHz (10 ppm)  |
| <b>Horizontal Frequency:</b>              | 3.077 - 250 kHz, 8192 dots maximum (in 1 dot steps *1)  |
| <b>Number of Vertical Scanning Lines:</b> | 8179 maximum (interlace)  |
| <b>Video Memory:</b>                      | (2048 dots x 2048 dots) x 4   |
| <b>Patterns:</b>                          | Fixed Patterns: 28<br>(Color still picture, SMPTE RP-133, crosshatch, dots, color bars, gray scale, circle, window, character list, all-character, character pattern, etc.)<br>Programmable Patterns<br>[Parameter-Controlled Patterns: 15, Special Pattern: 1] |

## Signal Output Level

|                                       |   |
|---------------------------------------|---|
| <b>Analog:</b>                        | Video R, G, B: 0.300 - 1.200 V, Setup (conforms to RS-343-A) ON/OFF<br>HS, VS, CS, DISP (BNC): 5 V/3.3 V, selectable<br>CLK (BNC): ECL amplitude, AC coupled output |
| <b>Digital:</b>                       | CMOS/TTL level (5 V) and CMOS/TTL level (3.3 V)*2, selectable   |
| <b>Equalizing Pulse:</b>              | OFF/0.5H/1H, selectable   |
| <b>Serration Pulse:</b>               | OFF/0.5H/1H/XOR, selectable   |
| <b>Composite Video Sync Signal:</b>   | ON/OFF selectable (G only) Level: Conforms to RS-343-A  |
| <b>Scanning:</b>                      | Non-interlace, interlace, interlace shrink  |
| <b>Analog Output (BNC):</b>           | R, G, B, HS, VS, CS, DISP, CLK  |
| <b>Analog Output Fine Adjustment:</b> | Offset level (adjustable R, G, B respectively)<br>Video level (adjustable R, G, B together)<br>RGB balance (adjustable R, B)  |

## Digital Output (Amphenol 57 series, 50-pin connector)

|                            |  |
|----------------------------|--|
| <b>DIGITAL OUTPUT1:</b>    | R7-R0, G7-G0, B7-B0, HS, VS, CS, HD, VD, DISP, CLK, CTRL0 (AV), CTRL1 (YS), Vcc (5 V/3.3 V)        |
| <b>DIGITAL OUTPUT2:</b>    | R7-R0, G7-G0, B7-B0 (1/2 CLOCK RATE) *3<br>CTRL2 (YM), Vcc (5 V/3.3 V)                             |
| <b>Output Control:</b>     | ON/OFF and inversion for R, G, B<br>ON/OFF and negative/positive for HS, VS, CS, HD, VD, DISP, CLK |
| <b>External Interface:</b> | RS232C (D-sub 9-pin connector)<br>REMOTE (Amphenol 57 series, 36-pin connector)                    |

## Environmental Conditions

|                                     |           |
|-------------------------------------|-----------|
| <b>Operating temperature:</b>       | 0 to 40°C |
| <b>Spec-Guaranteed temperature:</b> | 5 to 35°C |

## Power Requirements

90 to 250 VAC, universal (50/60 Hz)

## Dimensions

295 (W) × 72 (H) × 210 (D) mm

## Weight

3.2 kg

## Accessories

|  |   |
|--|---|
| User ROM.....                                | 1 |
| Windows application software (3.5" FD) ..... | 1 |
| Power cord.....                              | 1 |
| Instruction manual.....                      | 1 |

\*1 Timing for H-PERIOD, H-SYNC, and H-BP can be set in 1 dot steps.

\*2 CMOS/TTL level must be only 3.3 V for frequency range of 135 MHz (67.5 MHz + 67.5 MHz) to 150 MHz (75 MHz + 75 MHz)

\*3 In 1/1 clock mode, signals (i.e., R7-R0, G7-G0, B7-B0) are not output. The output impedance is set to 330 Ω through a pull-down resistor connected to ground since output pin of the IC.

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## Color still Picture mode

### Built-in color still picture (internal ROM area):

One Leader original VGA size 640(H) x 480(V) 256-color still picture built-in (not rewritable)

### Display color and maximum displayable number of dots:

256-color : 2048(H) x 1024(V)

### Display mode:

Upper left corner

### Scroll:

Impossible

### Color still picture display in direct mode:

Direct pattern display by sending data in bit map format from a personal computer. (Optional RAM not required. Display only : not stored)

### Optional color still picture, RAM rewrite function (factory option):

When color still picture backup RAM (2 MB) is built-in, color still picture can be displayed and stored by sending data in bit map format from a personal computer.

### Optional color still picture, number of pictures storable to RAM:

Up to six VGA size 640(H) x 480(V) 256 color still picture can be stored.

Up to two XGA size 1024(H) x 768(V) 256 color still picture can be stored.

**Limit of color still picture:** For only 256-color, the dot clock frequency is up to 150 MHz for analog output ; up to 150 MHz for digital output.

## Optional Accessory

### Still picture Backup RAM (Factory option)

With the multiple still picture suitable for the display characteristic evaluation allows quick pattern evaluation.

- Still picture backup RAM (2 MB)
- Up to six VGA size patterns can be registered.
- Up to two XGA size patterns can be registered.