

Monoscope and color still picture patterns are provided



Upon request



**LT 436NP**  
NTSC/PAL PATTERN GENERATOR

● GENERAL

The LT 436NP Analog Pattern Generator applicable to NTSC and PAL systems is ideal for production line, inspection, and R&D applications of LCD TVs. Providing 24 test patterns (e.g., monoscope pattern, 8-color raster, flash pattern, slant pattern, variable luminance raster, color still picture), this instrument is suitable for the latest high quality and resolution LCD TVs. The full color still picture pattern data can be changed by sending bit map data.

■ LT 436NP Rear Panel



● FEATURES

■ Monoscope pattern

The monoscope pattern with a resolution of 1000 TV lines is provided. Since color bar is superimposed on this pattern, resolution and color reproducibility can be tested simultaneously.

■ Color still picture pattern

A full-color still picture pattern can be stored inside the instrument. Users can transfer and use their original data for the still picture pattern. The sample pattern stored inside the instrument when it is shipped from the factory is Leader's original still picture pattern. For NTSC, an ITE color matching chart (a lady with a carnation) is provided as a fixed color still pattern in addition to the rewritable color still picture pattern.

■ S connector

Since S connector is used to output Y/C signals, this instrument can be used for adjusting and inspecting LCD TVs equipped with the S connector input.

■ Component signal output

Since Y, P<sub>B</sub>, P<sub>R</sub> and G, B, R can be output together with the composite signal, this instrument can be used for adjusting and inspecting LCD TVs equipped with the component signal input.

■ D Connector (for D1)

Two output systems (i.e., D connector, BNC connector) are provided to output Y, P<sub>B</sub>, P<sub>R</sub> component signals.

■ Various test patterns

Since various patterns (e.g., monoscope pattern, 8-color raster, flash pattern, slant pattern, variable luminance raster) are provided, this instrument is ideal for a variety of adjustment and inspection applications.

● SPECIFICATIONS LT 436NP

\* All specifications are common to both NTSC (525/60) and PAL (625/50) systems unless otherwise noted.

Video Signal

Common Specifications for Video Signal

<b>Color Format :</b>	NTSC (525/60) PAL (625/50)																															
<b>Scanning Method</b>																																
<b>NTSC :</b>	525 interlace scanning																															
<b>PAL :</b>	625 interlace scanning 624 non-interlace scanning																															
<b>Field Frequency</b>																																
<b>NTSC :</b>	59.94 Hz ± 25 ppm																															
<b>PAL :</b>	50.00 Hz ± 25 ppm(at interlace scanning) 50.08 Hz ± 25 ppm(at non-interlace scanning)																															
<b>Line Frequency</b>																																
<b>NTSC :</b>	15.734 kHz ± 25 ppm																															
<b>PAL :</b>	15.625 kHz ± 25 ppm																															
<b>Output Impedance:</b>	75 Ω																															
<b>Composite Video Signal</b>																																
<b>Subcarrier Frequency</b>																																
<b>NTSC :</b>	3.579545 MHz ± 25 ppm																															
<b>PAL :</b>	4.43361875 MHz ± 25 ppm																															
<b>Output Level</b>																																
<b>Video Level</b>																																
<b>NTSC :</b>	714 mV (100 % Level) ± 22 mV																															
<b>PAL :</b>	700 mV (100 % Level) ± 21 mV																															
<b>Sync Level</b>																																
<b>NTSC :</b>	286 mV ± 9 mV																															
<b>PAL :</b>	300 mV ± 9 mV																															
<b>Color Burst Level</b>																																
<b>NTSC :</b>	286 mVp-p ± 9 mV																															
<b>PAL :</b>	300 mVp-p ± 9 mV																															
<b>Phase Error :</b>	± 3°																															
<b>Output Connector</b>																																
<b>NTSC :</b>	BNC (Always outputs NTSC signal)																															
<b>PAL :</b>	BNC (Always outputs PAL signal)																															
<b>NTSC/PAL :</b>	BNC, RCA pin jack (NTSC or PAL signal selectable)																															
<b>Number of Outputs :</b>	1 each																															
<b>Y/C Separation Output</b>																																
<b>System :</b>	Same as the composite signal specifications																															
<b>Output Connector :</b>	S type (NTSC/PAL,Selectable)																															
<b>Number of Outputs :</b>	1																															
<b>Y, P<sub>B</sub>, P<sub>R</sub> Signal</b>																																
<b>Y Output Level</b>																																
<b>Video Level :</b>	700 mV ± 21 mV(100 % Level)																															
<b>Sync Level :</b>	300 mV ± 9 mV																															
<b>P<sub>B</sub>, P<sub>R</sub> Output Level</b>	± 350 mV ± 21 mV(100 % Level)																															
<b>Output Connector :</b>	BNC, D-connector (525/60 Always output)																															
<b>Number of Outputs</b>																																
<b>BNC :</b>	2 each (Also used for R, G, B)																															
<b>D-connector :</b>	1																															
<b>* The number of scanning lines is the same as the composite signal.</b>																																
<b>R, G, B Signal</b>																																
<b>Sync Signal :</b>	Superimposed on the G signal (ON/OFF selectable)																															
<b>R, G, B Output Level</b>																																
<b>Video Level :</b>	700 mV ± 50 mV (100 % Level)																															
<b>Sync Level :</b>	300 mV ± 15 mV (When sync signal is added)																															
<b>Output Connector :</b>	BNC																															
<b>Number of Outputs :</b>	2 each (Two connectors are also used for Y, P <sub>B</sub> , P <sub>R</sub> )																															
<b>* The number of scanning lines is the same as the composite signal.</b>																																
<b>D Connector (for D1 Format) Output</b>																																
<b>* Signal in 525/60 format is always output. (Signal in 625/50 format is not output.)</b>																																
<b>Specifications :</b>	Conform to EIAJ CP-4120 standards																															
<b>Video Signal</b>																																
<b>Signal Format :</b>	Same as the Y, P <sub>B</sub> , P <sub>R</sub> signal.																															
<b>Output :</b>	Inserting a plug does not turn the output off.																															
<b>Identification Signal</b>																																
<b>Line 1, 2, 3 :</b>	0 V																															
<b>Output DC Impedance :</b>	10 kΩ																															
<b>Auxiliary Lines</b>																																
<b>Auxiliary 1, 2, 3 :</b>	NC																															
<b>Connector</b>																																
<b>Connector :</b>	D connector (conforms to EIAJ RC-5237 standards)																															
<b>Pin Assignments</b>																																
<table border="1"> <thead> <tr> <th>Pin Number</th> <th>Signal Name</th> <th>Pin Number</th> <th>Signal Name</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Y</td> <td>8</td> <td>Line 1</td> </tr> <tr> <td>2</td> <td>Y_GND</td> <td>9</td> <td>Line 2</td> </tr> <tr> <td>3</td> <td>P<sub>B</sub></td> <td>10</td> <td>Auxiliary Lines 2</td> </tr> <tr> <td>4</td> <td>P<sub>B</sub>_GND</td> <td>11</td> <td>Line 3</td> </tr> <tr> <td>5</td> <td>P<sub>R</sub></td> <td>12</td> <td>Plug Detect GND</td> </tr> <tr> <td>6</td> <td>P<sub>R</sub>_GND</td> <td>13</td> <td>Auxiliary Lines 3</td> </tr> <tr> <td>7</td> <td>Auxiliary Lines 1</td> <td>14</td> <td>Plug Detect</td> </tr> </tbody> </table>	Pin Number	Signal Name	Pin Number	Signal Name	1	Y	8	Line 1	2	Y_GND	9	Line 2	3	P <sub>B</sub>	10	Auxiliary Lines 2	4	P <sub>B</sub> _GND	11	Line 3	5	P <sub>R</sub>	12	Plug Detect GND	6	P <sub>R</sub> _GND	13	Auxiliary Lines 3	7	Auxiliary Lines 1	14	Plug Detect
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3	P <sub>B</sub>	10	Auxiliary Lines 2																													
4	P <sub>B</sub> _GND	11	Line 3																													
5	P <sub>R</sub>	12	Plug Detect GND																													
6	P <sub>R</sub> _GND	13	Auxiliary Lines 3																													
7	Auxiliary Lines 1	14	Plug Detect																													

Sync Signal Output

<b>Sync Signal :</b>	HS, VS, C.SYNC
<b>Output Level :</b>	0 V to 5 V ± 250 mV (into open circuit)
<b>Output Impedance :</b>	75 Ω
<b>Output Connector :</b>	BNC
<b>Number of Outputs :</b>	1 each

Pattern

<b>Display Pattern</b>	
<b>Color Bar</b>	Full field color bar (100/0/100/0, 100/0/75/0 saturation, selectable)
<b>NTSC :</b>	SMPTE color bar Split field color bar Full field color bar (100 %, 75 % saturation, selectable)
<b>PAL :</b>	SMPTE color bar (A ratio is the same the NTSC system.) Split field color bar (A ratio is the same the NTSC system.)
<b>* For NTSC (525/60) and PAL (625/50) systems, the R, G, B connectors do not output the SMPTE color bar and split field color bar. (A black raster is output.)</b>	
<b>Raster :</b>	White, yellow, cyan, green, magenta, red, blue, black (100 %, 75 % saturation,selectable)
<b>Demodulation</b>	
<b>NTSC :</b>	The phase of R-Y and B-Y in the chroma signal are inverted every line.
<b>PAL :</b>	The phase of R-Y and B-Y of the chroma signal, and I and Q are inverted every line.
<b>* For NTSC (525/60) and PAL (625/50) systems, the R, G, B connectors do not output this signal. (A black raster is output.)</b>	
<b>Flashing :</b>	The 0 % or 100 % monochrome pattern is alternately displayed every field. Black line displayed from lower-left to upper-right corners at aspect ratio of 4:3 on a 100 % white background
<b>Slant Pattern :</b>	
<b>Line Sweep</b>	
<b>NTSC :</b>	0.1 to 5.0 MHz Marker 0.5, 1, 2, 3, 3.58, 4.5 MHz
<b>PAL :</b>	0.25 to 6.1 MHz Marker 1, 2, 3, 4, 5, 6 MHz
<b>Pulse Bar</b>	
<b>NTSC :</b>	Modulated 12.5T pulse, 2T pulse, 2T bar
<b>PAL :</b>	Modulated 20T pulse, 2T pulse, 2T bar
<b>Ramp :</b>	0 to 100 % ramp
<b>Step</b>	Level of 0 to 100 % is divided into 10 equal steps for 11 levels.
<b>NTSC :</b>	Level of 0 to 100 % is divided into 10 equal steps for 11 levels.
<b>PAL :</b>	
<b>Split Gray Scale :</b>	The screen is split in ratio of 1:1 for top and bottom At top portion, level between 0 % and 100 % is divided into 15 equal steps for 16 levels. Bottom portion is a 100 % white pattern. Black/white reversible Scale in units of % Color bars can be superimposed (100/0/75/0 saturation) Chroma component ON/OFF function (including color burst)
<b>Window :</b>	
<b>Monoscope :</b>	
<b>Convergence</b>	
<b>NTSC :</b>	17 (V) x 14 (H) lines
<b>PAL :</b>	19 (V) x 15 (H) lines
<b>Character</b>	
<b>NTSC :</b>	47 (H) x 24 (V) alphanumeric characters
<b>PAL :</b>	45 (H) x 24 (V) alphanumeric characters
<b>* Color burst is not superimposed in both NTSC and PAL systems.</b>	
<b>Color Still Picture</b>	
<b>NTSC :</b>	755 dots (H) x 483 lines (V)
<b>PAL :</b>	923 dots (H) x 574 lines (V)
Full color	Data can be changed by sending bit map data. (Windows application software is supplied for sending bit map data.)
<b>Level Variable in Video Period</b>	
<b>Applicable Pattern :</b>	Raster White - Window
<b>Variable Range :</b>	Continuous variable between 0 and 100 %
<b>Sound Output</b>	
<b>Frequency :</b>	1 kHz ± 150 Hz
<b>Output Level :</b>	1 Vp-p ± 0.1 V
<b>Output Impedance :</b>	10 kΩ ± 2 kΩ
<b>Output Connector :</b>	RCA pin jack
<b>Number of Outputs :</b>	2
<b>Environmental Conditions</b>	
<b>Operating : Temperature :</b>	0 to 40 °C
<b>Operating : Humidity :</b>	≤ 90 %RH (without condensation)
<b>Spec-Guaranteed : Temperature :</b>	10 to 30 °C
<b>Spec-Guaranteed : Humidity :</b>	≤ 85 %RH (without condensation)
<b>Operating Environment :</b>	Indoor use
<b>Operating Altitude :</b>	Up to 2,000 m
<b>Overvoltage Category :</b>	II
<b>Pollution Degree :</b>	2
<b>Power Requirements :</b>	90 to 250 VAC, universal, 50/60 Hz, 40 W max.
<b>Dimensions and Weight :</b>	426 (W) x 88 (H) x 400 (D) mm, 5.9 kg
<b>Accessories :</b>	Power cord ..... 1 Floppy disk (LT 436 series application software) ..... 1 Instruction manual ..... 1

\* "Windows" is a trademark of Microsoft Corporation, registered in the USA and other countries.