

VIDEO NTSC/PAL PATTERN GENERATOR

Monoscope and color still picture patterns are provided



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.

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_B, P_R 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_B, P_R 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.

■ LT 436NP REAR PANEL



SPECIFICATIONS

LT 436NP

Video Signal

Common Specifications for Video Signal

Color Format :	NTSC (525/60) PAL (625/50)
Scanning Method	
NTSC :	525 interlace scanning
PAL :	625 interlace scanning 624 non-interlace scanning
Field Frequency	
NTSC :	59.94 Hz±25 ppm
PAL :	50.00 Hz±25 ppm(at interlace scanning) 50.08 Hz±25 ppm(at non-interlace scanning)
Line Frequency	
NTSC :	15.734 kHz±25 ppm
PAL :	15.625 kHz±25 ppm
Output Impedance:	75 Ω
Composite Video Signal	
Subcarrier Frequency	
NTSC :	3.579545 MHz±25 ppm
PAL :	4.43361875 MHz±25 ppm
Output Level	
Video Level	
NTSC :	714 mV (100 % Level)±22 mV
PAL :	700 mV (100 % Level)±21 mV
Sync Level	
NTSC :	286 mV±9 mV
PAL :	300 mV±9 mV
Color Burst Level	
NTSC :	286 mVp-p±9 mV
PAL :	300 mVp-p±9 mV
Phase Error :	±3 °
Output Connector	
NTSC :	BNC (Always outputs NTSC signal)
PAL :	BNC (Always outputs PAL signal)
NTSC/PAL :	BNC, RCA pin jack (NTSC or PAL signal selectable)
Number of Outputs :	1 each
Y/C Separation Output System :	Same as the composite signal specifications
Output Connector :	S type (NTSC/PAL,Selectable)
Number of Outputs :	1
Y, P_B, P_R Signal	
Y Output Level	
Video Level :	700 mV ±21 mV(100 % Level)
Sync Level :	300 mV ±9 mV
P_B, P_R Output Level:	±350 mV ±21 mV(100 % Level)
Output Connector :	BNC, D-connector (525/60 Always output)
Number of Outputs	
BNC :	2 each (Also used for R, G, B)
D-connector :	1
* The number of scanning lines is the same as the composite signal.	
R, G, B Signal	
Sync Signal :	Superimposed on the G signal (ON/OFF selectable)
R, G, B Output Level	
Video Level :	700 mV ±50 mV (100 % Level)
Sync Level :	300 mV ±15 mV (When sync signal is added)
Output Connector :	BNC
Number of Outputs :	2 each (Two connectors are also used for Y, P _B , P _R)
* The number of scanning lines is the same as the composite signal.	

D Connector (for D1 Format) Output

* Signal in 525/60 format is always output. (Signal in 625/50 format is not output.)
Specifications : Conform to JEITA CP-4120 standards

Video Signal	
Signal Format :	Same as the Y, P _B , P _R signal.
Output :	Inserting a plug does not turn the output off.
Identification Signal	
Line 1, 2, 3 :	0 V
Output DC Impedance :	10 kΩ
Auxiliary Lines	
Auxiliary 1, 2, 3 :	NC
Connector	
Connector :	D connector (conforms to JEITA RC-5237 standards)
Pin Assignments:	

Pin Number	Signal Name	Pin Number	Signal Name
1	Y	8	Line 1
2	Y_GND	9	Line 2
3	P _B	10	Auxiliary Lines 2
4	P _B _GND	11	Line 3
5	P _R	12	Plug Detect GND
6	P _R _GND	13	Auxiliary Lines 3
7	Auxiliary Lines 1	14	Plug Detect

Sync Signal Output

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

Pattern

Display Pattern

Color Bar	
NTSC :	Full field color bar (100/0/100/0, 100/0/75/0 saturation, selectable) SMPTE color bar Split field color bar
PAL :	Full field color bar (100 %, 75 % saturation, selectable) SMPTE color bar (A ratio is the same the NTSC system.) Split field color bar (A ratio is the same the NTSC system.)
* 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.)	
Raster :	White, yellow, cyan, green, magenta, red, blue, black (100 %, 75 % saturation,selectable)

Demodulation

NTSC :	The phase of R-Y and B-Y in the chroma signal are inverted every line.
PAL :	The phase of R-Y and B-Y of the chroma signal, and I and Q are inverted every line.
* For NTSC (525/60) and PAL (625/50) systems, the R, G, B connectors do not output this signal. (A black raster is output.)	

Flashing :

The 0 % or 100 % monochrome pattern is alternately displayed every field.

Slant Pattern :

Black line displayed from lower-left to upper-right corners at aspect ratio of 4:3 on a 100 % white background

Line Sweep

NTSC :	0.1 to 5.0 MHz Marker 0.5, 1, 2, 3, 3.58, 4.5 MHz
PAL :	0.25 to 6.1 MHz Marker 1, 2, 3, 4, 5, 6 MHz

Pulse Bar

NTSC :	Modulated 12.5T pulse, 2T pulse, 2T bar
PAL :	Modulated 20T pulse, 2T pulse, 2T bar
Ramp :	0 to 100 % ramp

Step

NTSC :	Level of 0 to 100 % is divided into 10 equal steps for 11 levels.
PAL :	Level of 0 to 100 % is divided into 10 equal steps for 11 levels.

Split Gray Scale :

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.

Window :

Black/white reversible

Monoscope :

Scale in units of %
Color bars can be superimposed (100/0/75/0 saturation)
Chroma component ON/OFF function (including color burst)

Convergence

NTSC :	17 (V) x 14 (H) lines
PAL :	19 (V) x 15 (H) lines

Character

NTSC :	47 (H) x 24 (V) alphanumeric characters
PAL :	45 (H) x 24 (V) alphanumeric characters

* Color burst is not superimposed in both NTSC and PAL systems.

Color Still Picture

NTSC :	755 dots (H) x 483 lines (V)
PAL :	923 dots (H) x 574 lines (V)

Full color
Data can be changed by sending bit map data.

Level Variable in Video Period

Applicable Pattern :	Raster White•Window
Variable Range :	Continuous variable between 0 and 100 %

Sound Output

Frequency :	1 kHz±150 Hz
Output Level :	1 Vp-p±0.1 V
Output Impedance :	10 kΩ±2 kΩ
Output Connector :	RCA pin jack
Number of Outputs :	2

Environmental Conditions

Operating Temperature :	0 to 40 °C
Operating Humidity :	≤ 90 %RH (without condensation)
Spec-Guaranteed Temperature:	10 to 30 °C
Spec-Guaranteed Humidity:	≤ 85 %RH (without condensation)
Operating Environment :	Indoor use
Operating Altitude :	Up to 2,000 m
Overvoltage Category :	II
Pollution Degree :	2

Power Requirements

90 to 250 VAC, universal, 50/60 Hz, 40 W max.

Dimensions and Weight

426 (W) x 88 (H) x 400 (D) mm, 5.9 kg

Accessories

Power cord	1
Instruction manual	1

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