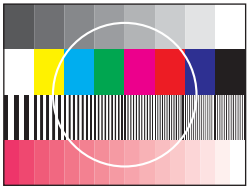
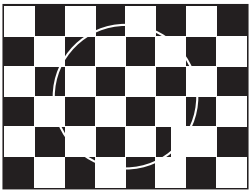
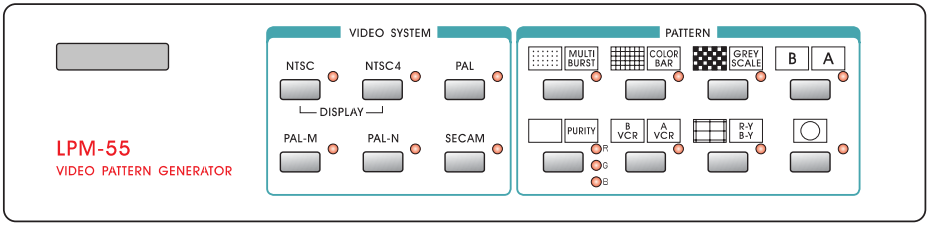


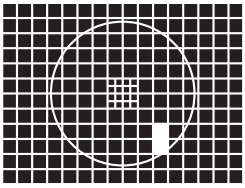


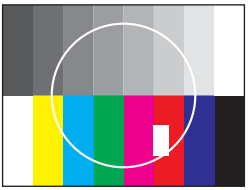
LPM-55

Multisystem Video Pattern Generator

OPERATION MANUAL







Warnings

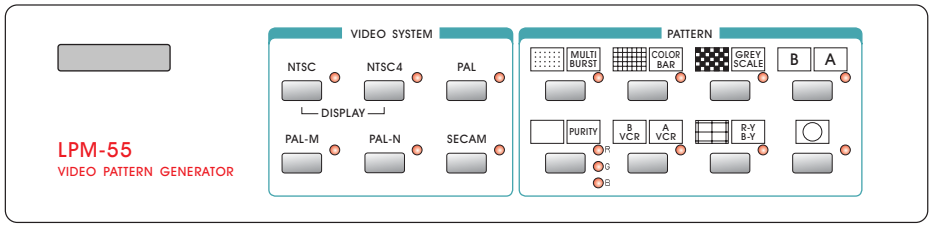
1. Do not expose to direct sunlight.
2. Keep the unit away from radiators and other heat sources, and magnetic fields.
3. Do not place in areas of high humidity or dusty conditions.
4. Always position the unit properly on its built-in feet.
5. Do not stack any objects on top of this unit.
6. Be sure air can circulate freely around the unit.
7. While using this device, if the picture is not clear, try positioning it further away from the TV.
8. Unplug the unit from the power source when it is not to be used for several hours or more.

Features

1. Built-in On Screen Display indicates the TV system of the output pattern.
2. Fourteen basic test patterns are provided, which include Circle, 8-step Grey Scale, 16-step Grey Scale, Color Bar, Multiburst, Color Difference R-Y, B-Y, Moving White Field, White Pattern, Checkerboard, Crosshatch, Dots, Center Cross, and Purity Patterns.
3. More than 100 different test patterns are available through the combination of 14 basic patterns.
4. Multiburst pattern comprises full screen definition pattern of 8 vertical bars at frequencies of 0.1-1.8-2.8-3.0-3.4-3.8-4.8 MHz.
5. Four different speeds are available for the Moving White Field for testing fast motion picture.
6. Multisystem output suits worldwide TV system: NTSC 3.58, NTSC 4.43, PAL, PAL M, PAL N,and SECAM.
7. Three video output formats---Composite video, Y/C Separation, Color Difference Y, R-Y, B-Y.

Operating Instruction

Front panel



Video System Controls

NTSC

Press the button to choose NTSC as the output system. LED illuminates when selected.

NTSC4

Press the button to choose NTSC 4.43 as the output system. LED illuminates when selected.

PAL

Press the button to choose PAL as output system. LED illuminates when selected.

PAL-M

Press the button to choose PAL M as output system. LED illuminates when selected.

PAL-N

Press the button to choose PAL N as output system. LED illuminates when selected.

SECAM

Press the button to choose SECAM as the output system. LED illuminates when selected.

NTSC + **NTSC4** — DISPLAY

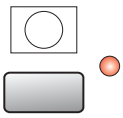
Press both buttons simutaneously to turn on the On-Screen display that indicates TV system. Press again to turn off the On Screen display.

Test pattern controls

B A

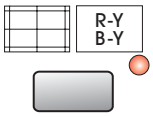
The 14 basic patterns and divided into two groups (namely Page A and Page B).Press the button A allows you to choose patterns that are grouped into Page A. Press the button B allows you to choose patterns stored in Group B.Patterns in the Page A include Greyscale, Color bar,Multiburst,Color difference,AVCR and Purity.
Patterns in the Page B include Checkerboard, Crosshatch, Dots, Center cross, BVCR and White pattern.

Operating Instruction

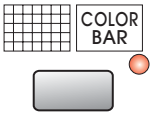


Press the button to generate the Circle pattern. LED illuminates when selected. Press the button again to turn off the Circle, the LED extinguishs accordingly.
Circle pattern can be combined with any other test patterns. It is stored in both page A and page B.

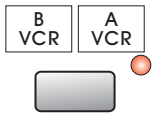
When the Page A is selected, press the button to generate The Gray scale pattern. There are two (8-step and 16-step) Greyscales. Press once to get 8-step Greyscale patterns; press twice to get 16-step. When the Page B is selected press the button to generate the Checkerboard pattern. LED illuminates when either one of the pattern is activated.



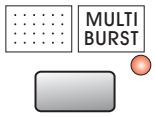
When the Page A is selected, press the button to generate the Color Difference patterns.Press once to get R-Y pattern, press twice to get B-Y pattern. When the Page B is selected, press the button to genertae the Center Cross pattern. LED illuminates when either one of the patterns is activated.



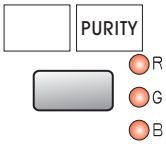
When the Page A is selected, press the button to generate the Color Bar pattern. When the Page B is selected, press the button to generate the Crosshatch pattern. There are two types of Crosshatch. Press the button once shows original Crosshatch.
Press again adds the dots to the Crosshatch. LED illuminates when either one of the pattern is activated.



Press either AVCR or BVCR to generate the White Moving Rectangle moving from left to right at the button of the screen. There are 4 different moving speed to choose from.
Press the button repeatedly will vary the speed of the rectangle.



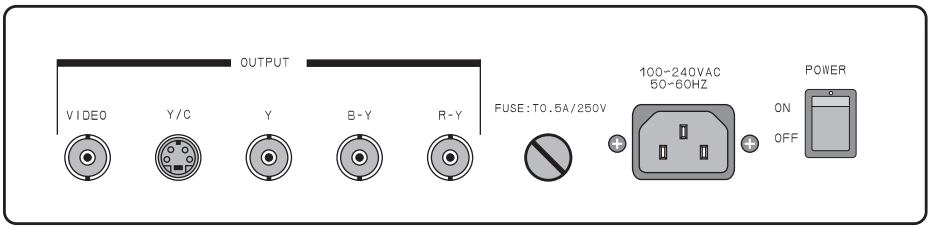
When the Page A is selected, press the button to generate the Multiburst pattern. When the Page B is selected. Press the button to produce a dot pattern. LED illuminates when either one of the pattern is selected.



When the Page A is selected, press the button to generate one of the 8 purity patterns. Press the button repeatedly will toggle through the 8 colors in the following sequence:
Black→Red→Green→Blue→Purple →Yellow→Cyan→White →Black
When a color is selected, the LED of the corresponding color(or colors) will illuminantes.
When the Page B is selected, press the button to generate the color negative of an existing pattern.

Operating Instruction

Rear Panel



Video output

VIDEO

Composite video output.

Y/C

Y/C Separation output.

Y

Color Difference Y output.

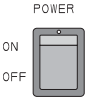
B-Y

Color Difference B-Y output.

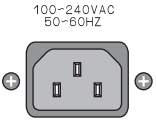
R-Y

Color Difference R-Y output.

Power and Fuse



Power switch.



Power socket

FUSE:T0.5A/250V

Fuse: T0.5A/250V

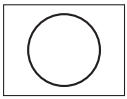
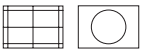
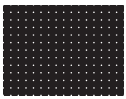
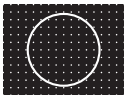
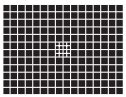
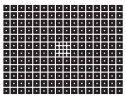
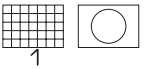
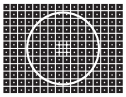
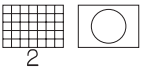
Survey of Patterns and Applications

No.	Signal Content	Key	Page A	Page B	Application
1.	**Circle** White circle on black background Black circle on white background		X X X X	X X X X	-Overall linearity -Overall geometry -Framing -Reflections
2.	**Center Cross And Border** Castellations on black or white background			X X X	-Centering TV screen -Pin-cushion correction -Deflection linearity
3.	**White pattern** 100% white signal (with color burst)			X X X X X	-White setting -Brightness control -Beam current of picture tube -Luminance writing current -FM demodulator (white level)
4.	**Dots**			X X	-Static convergence -Focussing
5.	**Crosshatch** White center indication top-left indication (no color burst)			X X X X X	-Static convergence -Dynamic convergence -Pin-cushion correction -E/W-N/S corrections -Amplitude response
6.	**Checkerboard**			X X X X X X X	-Focus adjustment -Horizontal/Vertical synchronization -Horizontal/Vertical linearity -Horizontal/Vertical deflection -Amplitude response, Bandwidth -Framing -Main hum interference in synchronization -Black/white transitions
7.	**Greyscale** Full screen Linear staircase signal with 8 identical steps from black to white		X X X		-Brightness + contrast circuitry -Greysale tracking -Linearity of video amplifier
8.	**Multiburst** Full screen definition pattern of 8 vert. bars 0.8 MHz to 4.8 MHz		X X		-Video bandwidth -Amplitude response/ resolution
9.	**Color Bar** Comprises 8 vertical bars- White, Yellow, Cyan,Green, Magenta, Red, Blue and Black		X X X X X X		-Overall color performance -Burst keying -Subcarrier regeneration -Matrix circuit check -RGB amplifiers -Color delay versus B/W signal saturation

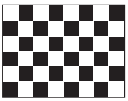
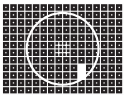
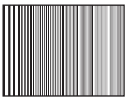
Application of the test patterns

No.	Signal content	Button	Page A	Page B	Application
10.	**AVCR pattern** Moving white rectangle at 4 different speed	A VCR	X X X		-Recording performance -Slow/Quick motion test -Still picture
11.	**BVCR pattern** Moving white rectangle at 4 different speed	B VCR		X X X	-Recording performance -Slow/Quick motion test -Still picture
12.	**R-Y,B-Y pattern** Saturation step signal 16 steps of linearly decreasing chroma R-Y and B-Y	R-Y B-Y	X X X		-Linearity of chroma amplitude -Sensitivity of color amplitude -Color AGC -Ratio chroma/Luminance
13.	**Purity pattern** 3 primary colors: Red, Green, Blue 3 complementary colors: Magenta, Yellow, Cyan Addition white (100% Y) Black	PURITY	X X X X X X		-Purity checks and adjustment -Interference between sound and chroma carrier -Color A.G.C. -Chroma writing current of video recorders -White setting -Synchronization
14.	**Page A selection**	A	X		-Select patterns in the Page A
15.	**Page A selection**	B		X	-Select patterns in the Page B

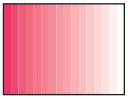
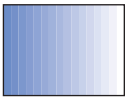
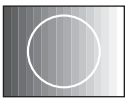
Combination of the patterns

No.	Signal Content	Buttons pressed
1.	 **Circle** White circle Blackground	B 
2.	 **Circle** Black circle White background	B 
3.	 **Center cross** and border	B 
4.	 Center cross, Circle and border	B 
5.	 **Dots** White dots Black background	B 
6.	 Dots, Circle	B 
7.	 Crosshatch 1	B  1
8.	 Crosshatch 2	B  2
9.	 Crosshatch 1 and Circle	B  1
10.	 Crosshatch 2 and Circle	B  2

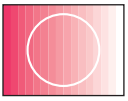
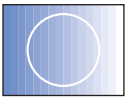
Pattern Combinations

No.	Signal Content	Buttons pressed
11.	 Checkerboard	B 
12.	 Ckeckerboard and Circle	B  
13.	 Ckeckerboard, Circle and BVCR	B   B VCR
14.	 Crosshatch 1, Circle and BVCR	B  1  B VCR
15.	 Crosshatch 2, Circle and BVCR	B  2  B VCR
16.	 Dots,Circle and BVCR	B   B VCR
17.	 8-step Greyscale	A GREY SCALE 1
18.	 16-step Greyscale	A GREY SCALE 2
19.	 Color Bar	A COLOR BAR
20.	 Multiburst	A MULTI BURST

Pattern Combinations

No.	Signal Content	Buttons pressed
21.	 R-Y Pattern	A, R-Y B-Y 1
22.	 B-Y Pattern	A, R-Y B-Y 2
23.	 Greyscale and Color bar	A, GREY SCALE 1, COLOR BAR
24.	 Greyscale and Multiburst	A, GREY SCALE 1, MULTI BURST
25.	 Color bar and Multiburst	A, COLOR BAR, MULTI BURST
26.	 Greyscale Color bar and Multiburst	A, GREY SCALE 1, COLOR BAR, MULTI BURST
27.	 Greyscale Color bar and Multiburst and R-Y	A, GREY SCALE 1, COLOR BAR, MULTI BURST, R-Y B-Y 1
28.	 8-step Greyscale and Circle	A, GREY SCALE 1, ◯
29.	 16-step Greyscale and Circle	A, GREY SCALE 2, ◯
30.	 Color bar and Circle	A, COLOR BAR, ◯

Pattern Combinations

No.	Signal Content	Buttons pressed
31.	 Multiburst and Circle	A · MULTI BURST · ◯
32.	 R-Y and Circle	A · R-Y B-Y 1 · ◯
33.	 B-Y and Circle	A · R-Y B-Y 2 · ◯
34.	 Greyscale, Color bar and Circle	A · GREY SCALE 1 · COLOR BAR · ◯
35.	 Greyscale, Multiburst and Circle	A · GREY SCALE 1 · MULTI BURST · ◯
36.	 Color bar, Multiburst and Circle	A · COLOR BAR · MULTI BURST · ◯
37.	 Greyscale, Color bar,Multiburst and Circle	A · GREY SCALE 1 · COLOR BAR · MULTI BURST · ◯
38.	 Greyscale, Multiburst,Color bar and R-Y	A · GREY SCALE 1 · COLOR BAR · MULTI BURST · R-Y B-Y 1 · ◯
39.	 Greyscale, Color bar, Circle and AVCR	A · GREY SCALE 1 · COLOR BAR · ◯ · A VCR
40.	 Greyscale,Color bar, Multiburst, Circle and AVCR	A · GREY SCALE 1 · COLOR BAR · MULTI BURST · ◯ · A VCR

TV System

Color System	Horizontal Lines	Vertical Frequency	Horizontal Frequency	Color Subcarrier
NTSC3.58	525	59.94HZ	15.734KHZ	3.579545MHZ
NTSC4.43	525	59.94HZ	15.734KHZ	4.433619MHZ
PAL	625	50HZ	15.625KHZ	4.433619MHZ
PAL-M	525	59.94HZ	15.734KHZ	3.575611MHZ
PAL-N	625	50HZ	15.625KHZ	3.582056MHZ
SECAM	625	50HZ	15.625KHZ	FoR=4.406250MHZ FoB=4.250000MHZ

Basic Patterns

Circle	One white circle on black background in the center of the screen.
Center Cross	White center cross and black/white border castellations for 3% over scan indication.
Dots	17X13 (525 line systems) , 17X12 (625 line systems)
Crosshatch	17X13 (525 line systems) , 17X12 (625 line systems)
Checkerboard	Full field checkerboard with 8x6 Black/White block.
Greyscale	8-step linear Greyscale, 16-step linear Greyscale
Multiburst	Full screen definition pattern of 8 vertical bars 0.1-1.8-2.8-3.0-3.4-3.8-4.8MHz
VCR Pattern	1/6 vertical white rectange 4 different moving speed.
Color Bar	Full field color bar pattern with vertical bars begin with White-Yellow-Cyan-Green-Magenta-Red-Blue-Black
Color Difference	16 steps of linearly decreasing R-Y and B-Y
Purity	3 Primary colors:Red, Green, Blue 3 Complementary colors Magenta, Yellow, Cyan, Additional white (100% Y),Black.

Composite Video Output (BNC Connector)

Output level	1Vp-p,75Ω
Signal level	714mV,75Ω (525 line systems) 700mV,75Ω (625 line)
Sync level	286mV,75Ω (525 line systems) 300mV,75Ω (625 line)

Y/C Separation output(4 pin mini-Din Connector)	
Y output level	1Vp-p,75Ω
C output level	100％,75Ω
Color Difference output	
Y output level	1Vp-p,75Ω
R-Y level	0.7Vp-p,75Ω
B-Y level	0.7Vp-p,75Ω
Environmemtal Condition	
Operating Temperature	+5℃to +40℃
Storage Temperature	-20℃ to +60℃
Operating Humidity	20 to 80％
Storage Humidity	5 to 95％
Power Supply	
Voltage	100~240VAC
Frequency	50~60HZ
Power Consumption	Approx. 3W
Dimensions	
Length	280mm
Width	180mm
Height	70mm
Weight	Approx. 1.7kg
Accessories	Operation manualx1,AC Power cable x1

Specifications subject to change without notice