

### **LEADER**

# Component signal outputs of Y/B-Y/R-Y & GBR



### • GENERAL

Model LT 416 is a precision test-signal source which provides four color systems of NTSC, PAL, SECAM, and NTSC-4.43 for testing and adjusting all kind of video products such as TV, VTR etc.

In addition of a composite signal output, the generator provides a Y/C output and a component signal outputs(except SECAM) of Y/B-Y/R-Y and GBR so that it is suitable to a production line for video products of component system.

RF output is easily selected by setting channel number while the channels are pre-programmed by each countries. 15 test patterns including color bars, raster, convergence and circle satisfy the most desired applications.

#### • FEATURES

Conforms to four standards (i.e., NTSC, PAL, SECAM, NTSC-4.43)

This generator is ideal for adjusting and testing TVs, and AV equipments.

S connector

An S connector is provided to output Y and C signals for adjusting AV equipments with S connector.

#### Component video signal output

This generator output the composite video signal and component video signal.

Since Y/ B-Y/ R-Y or G/ B/ R is output, the generator allows test signals for component AV system adjustment and testing. (The SECAM color signals (B-Y, R-Y) are not output.)

#### RF setting

The channel plan based on the country system is provided for easier RF frequency setting

#### Various test patterns

This 15 patterns including color bar and circle are provided for various adjustment and test processes.



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• SPECIFICATIONS **Composite Video Signal Output** Color System: Scanning Method NTSC/NTSC-4.43: NTSC, PAL, SECAM, NTSC-4,43 525-line interlace scanning PAL/ SECAM: 625-line interlace scanning (Progressive scanning can be performed for all color systems when the CIRCLE or CON-VERGENCE pattern is selected.) Field frequency NTSC: 59.94 Hz ±30 ppm (60.06 Hz  $\pm$ 30 ppm for progressive scanning) PAL/ SECAM: 50 Hz ±30 ppm NTSC-4.43: scanning) Line frequency NTSC: PAL/ SECAM: NTSC-4.43: Subcarrier Frequency NTSC: NTSC-4.43: Video Generating System: Number of Quantitative Bits: 8 bits Output Impedance: Output Level:  $75 \Omega$ Setup Level: available) Output connector Fixed output: Variable output: Sync Signal Amplitude: Horizontal Sync Width: Vertical Sync Width NTSC/NTSC-4.43: ЗH PAL/ SECAM: Vertical Blanking Period NTSC/ NTSC-4.43: 2.5H 20H PAL/ SECAM: 25H Color Burst Amplitude: Number of Cycles: SECAM Color Identification Signal Amplitude D'R Line: D'B Line: SECAM Color (Back porch on the horizontal blanking period) Amplitude D'R Line D'B Line: **Test Patterns** Color Bar: 100/ 0/ 75/ 0 Full-field Color Bar Demodulator Pattern (Not output when the SECAM is selected) PAL: NTSC line n: line n+1: line n: line n+1: Multiburst Frequency NTSC/ NTSC-4.43: PAL/ SECAM: Amplitude: Raster Output eight colors in combination with red, green and, blue Color: Amplitude:

(50.08 Hz  $\pm 30$  ppm for progressive scanning) 59.94 Hz ±150 ppm (60.06 Hz  $\pm$ 150 ppm for progressive 15.734 kHz  $\pm 30$  ppm 15.625 kHz  $\pm 30$  ppm 15.734 kHz  $\pm 150$  ppm 3.579545 MHz ±30 ppm 4.43361875 MHz ±30 ppm 4.43361875 MHz ±50 ppm Digital system using 4 fsc sampling (without SECAM) 1 V<sub>P-P</sub> ±50 mV<sub>P-P</sub> (Between sync tip and 100 % white) NTSC: 0 % ("7.5 %" model optionally RCA jack ..... 1 BNC ..... 1 286 mV\_{P^{-p}}  $\pm 14$  mV\_{P^{-p}}(NTSC/ NTSC-4.43) 300 mV\_{P^{-p}} \pm 15 mV\_{P^{-p}}(PAL/ SECAM) 4.7 µs ±200 ns 286 mV<sub>P-P</sub> ±23 mV<sub>P-P</sub> (NTSC/ NTSC-4.43) 300 mV<sub>PP</sub> ±24 mV<sub>PP</sub> (PAL/ SECAM) NTSC: 9 cycles,PAL: 10 cycles, NTSC-4.43: 11 cycles 540 mV<sub>P-P</sub> +40 mV<sub>P-P</sub>, -50 mV<sub>P-P</sub> 500 mV<sub>P-P</sub> ±50 mV<sub>P-P</sub> 215 mV<sub>PP</sub> ±25 mV<sub>PP</sub> 167 mV<sub>P-P</sub> ±20 mV<sub>P-P</sub> Combination of normal and reversed B-Y and R-Y for each line D- 1 and R- 1 for each line Combination of normal and reversed B-Y, R-Y, I, and Q for each line R-Y, -(R-Y), B-Y, -(B-Y), R-Y, -(R-Y), B-Y, -(B-Y) -(R-Y), R-Y, B-Y, -(B-Y), R-Y, -(R-Y), -(B-Y), B-Y I, -I, Q, -Q, I, -I, Q, Q

0.5, 1.0, 2.0, 3.0, 3.58, 4.2 MHz 0.5, 1.0, 2.0, 4.0, 4.8, 5.5 MHz 100 % (\*1) 100 % white, yellow, cyan, green, magenta, red, blue, black

Same as color bars

of convergence and circle patterns.)

Window Amplitude: 100 % (\*1) Step 10 equal steps from 0 mV to 700 mV white

Max. Luminance Amplitude: 100 % **Circle Pattern:** White circle pattern (with black fringe) on the convergence pattern Color Burst on/ off Selectable (Flicker may occur on the border

Interlace/ Progressive:

Window

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Convergence Luminance Amplitude: Number of Vertical Lines NTSC/ NTSC-4.43: 75 % 17 PAL/ SECAM: 19 Number of Horizontal Lines NTSC/ NTSC-4.43: 14 14 PAL/ SECAM: 15 Horizontal Line Width: Number of Dots NTSC/ NTSC-4.43: 2 lines 16 x 13 PAL/ SECAM: 18 x 14 Dot Pulse Vertical Width: 2 lines Color Burst: On/ off selectable Interlace/ Progressive: Selectable <sup>1</sup>) Notes on pattern specifications Signal amplitude (100 %) is as follows. PAL/ SECAM: NTSC/ NTSC-4.43: 700 mV<sub>P-P</sub> 714 mV<sub>0-0</sub> Accuracy: Y/ C Separation Output Same as the composite signal Specifications: Same as the composite signal **Output Impedance:** 75 Ω Connector: Number of Outputs: B-Y, R-Y Output S type 1 Output Signal (\*2): Y, B-Y, R-Y Y Output Amplitude NTSC/ NTSC-4.43: 714 mV<sub>P-P</sub> ±36 mV PAL: 700 mV<sub>P-P</sub> ±35 mV Sync Signal Amplitude NTSC/ NTSC-4.43: 286 mV<sub>P-P</sub> ±14 mV PAL: 300 mV<sub>P-P</sub> ±15 mV B-Y, R-Y Output Amplitude: 525 mV<sub>P-P</sub> ±26 mV **Output Impedance:** 75 Ω Connector: BNC (\*2) B-Y and R-Y are output when the SECAM is selected; (\*2) B-Y and n-1. Y is only output. R, G, B Output Output Signal (\*<sup>3</sup>): R, G, B Output Amplitude: C.SYNC Output Amplitude: Output Impedance: R. G. B. C.SYNC Connector: BNC Number of Outputs: 1 each (Pulse noise may be superimposed on the leading and trailing edges of the R, G and B Sync signals.) (\*<sup>3</sup>)R, G, B are output when the SECAM is selected; C.SYNC is only output. **RF Output** System NTSC: Μ PAL: B, D, G, H, I, K SECAM: selected) Carrier Frequency Range: Carrier Frequency Setting VHF and UHF Method: Modulation Polarity: Modulation System: Double sideband Sound Signal Intercarrier Frequency: Modulation Signal: 1 kHz ±200 Hz Output Voltage VHF: UHF: Number of Output: 1 (75 Ω, BNC) Sound Output Output Signal: Amplitude: Number of Output: Environmental Conditions 1.2  $V_{PP}$  (into 600  $\Omega$ ) 1 (RCA jack) 
 Operating Temperature:
 0 to 40 °C

 Operating Humidity:
 ≤ 90 % RH

 Spec-Guaranteed Temperature:
 10 to 30 °C
 $\leq$  90 % RH (without condensation) Spec-Guaranteed Humidity: Operating Environment: Operating Altitude: Indoor use Up to 2000 m Overvoltage Category: Pollution Degree: Ĥ **Power Requirements:** 90 to 250 VAC, 50/ 60 Hz 15 W max. **Dimensions and Weight:** 

B, D, G, H, K, L (The RF is disabled when the NTSC-4.43 is

Direct setting using programmed country channel plan (Arbitrary frequency cannot be set) Negative or Positive

4.5. 5.5. 6.0. 6.5 MHz

At least 1 mVrms (into 75 Ω) At least 0.5 mVrms (into 75  $\Omega$ )

1 kHz ±100 Hz, sine wave

≤ 85 % RH (without condensation)

426 (W) x 88 (H) x 300 (D) mm 4.6 kg Power cord . Instruction manual ..... 1

Accessories: