

NTSC and NTSC/PAL/SECAM Test/Sync Generators



Models 408/408NPS (Model 408 shown)

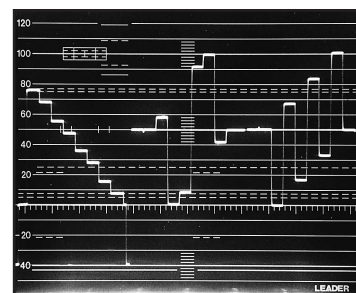
- NTSC M (408 and 408NPS)
- PAL-B, C, D, G, H, I, K and L (408NPS only)
- SECAM III-B, D, G, H, K and L (408NPS only)
- Composite, RGB, Y/R-Y/B-Y, Y/C
- VHF/UHF/Cable R-F Coverage

- Programmable Parameters
- 100 Program Storage
- 15 MHz Sweep and Multiburst
- VHF/UHF Modulator Accepts Internal and External Video and Audio

Microprocessor control and digital synthesis give the 408 and 408NPS extreme flexibility in test signal programming of both video and RF outputs. Signals available simultaneously include composite video, Y/C, Y/R-Y/B-Y, GBR, full sync generator outputs, audio test tones (400 Hz and 1 kHz) and modulated output from 30 to 900 MHz. Multiple test patterns include wide and narrow video sweeps and multiburst with last burst variable to 15 MHz. Signal modifiers include polarity inversion, superimposed circle and moving marker as well as on/off and level control of burst, sync, setup, luminance, chroma, R, B and G. Genlock and remote control are standard. GPIB is available as an option. The 408 operates in the NTSC system while the 408NPS extends all operating features into PAL and SECAM as well. Applicable video and audio modulation is selected by system designation. The FUNCTION DATA block provides easy access to all programming functions. Here, up to 100 test setups can be stored, each one holding front panel settings (pattern selected, genlock on/off, signal modifiers, etc.), tailored or standard video parameters, RF channel selected or tailored to any carrier frequency between 30 and 900 MHz. Program control over video parameters allow component values for Betacam or MII to be set up. The LCD panel shows partial programming menus, but the full menu may be superimposed on the selected pattern on a monitor screen.



Full Menu Superimposed on Output Pattern



Component Signals Y, B-Y, R-Y



Rear Panel Models 408/408NPS (Model 408 shown)

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Note

Specifications identified as PAL or SECAM apply to the 408NPS only. All others are common to both the 408 and 408NPS.

KEY SPECIFICATIONS (408/408NPS)

SYSTEMS

NTSC M

PAL - B, C, D, G, H, I, K and L

SECAM III - B, D, G, H, K and L

TEST SIGNALS

Crosshatch

100% 15 V x 11 H with corner marker

Convergence

100% 15 V x 11 H, lines, 75% 14 V x

10 H dots

Window

White window on black background

Checker

8 V x 6 H

The above are white on black, but may be polarity inverted

Staircase

5 step, B-Y modulation 40% (on-off)

10 step, B-Y modulation 40% (on-off)

Demodulation

NTSC: B-Y/R-Y, I/Q

PAL: U/V

SECAM: Not Applicable

Color Bars

Full field, white 75 or 100% switchable

SMPTE: NTSC SMPTE ECR 1-1978

PAL/SECAM SMPTE ECR-1

1978 adapted

Rasters (Flat Fields)

8 colors including black and white

Multiburst

NTSC: 0.5, 1, 2, 3, 3.58 and 4.2 MHz

PAL/SECAM: 0.5, 1, 2, 4, 4.8 and 5.8

MHz

Last burst variable 1 to 15 MHz (all systems)

50 or 100% amplitude

Flatness: ± 0.5 dB, 0.5 to 10 MHz

Video Sweep

Narrow: 0.1 - 5 MHz

Wide: 0.3 - 15 MHz

Markers: Narrow NTSC 0.5, 1, 2, 3, 3.58 and 4.2 MHz

PAL/SECAM: 0.5, 1, 2, 3, 4 and 5 MHz

Wide 2, 4, 6, 8, 10, 12 and 14 MHz

Others (Accessed with INC/DEC Keys)

Split/reverse color bars, single cross,

MATRIX (combo pattern), HORIZ

color bars, color checker, modulated

staircase at 10 and 90% APL

Mode Switching

White: 75 or 100%

Red: on/off

Green: on/off

Blue: on/off

Burst: on/off

Sync: on/off

Luminance: on/off

Chrominance: on/off

Invert: (polarity inversion of monochrome patterns)

Moving Marker: on/off (simulates motion for VCR speed checks)

AMPLITUDE PRESETS

Sync: 0-200%*

Burst: 0-200%*

Luminance: 0-200%*

Chrominance: 0-100%*

Setup: NTSC 0-20%, PAL/SECAM 0%

*Reference: Standard values for applicable system

FRONT PANEL OUTPUTS

Composite Video

1 V p-p into 75 Ω , fixed, 0-1 V p-p variable

Trigger

HD or VD switchable, TTL level

RF Output

Frequency range: 30-900 MHz

Preset resolution: 10 kHz

ΔF in CH mode ± 10 MHz

Level: 100 μV - 10 mV, approx.

Modulation polarity: negative or positive according to country

Accuracy: ± 50 ppm of set value

Sound: intercarrier system NTSC

4.5 MHz, PAL/SECAM 5.5, 6 and

6.5 MHz selectable

REAR PANEL OUTPUTS

Composite video: 1 V p-p

Y: 1 V p-p

R-Y: 0.7 V p-p

B-Y: 0.7 V p-p

Subcarrier: 2 V p-p into 75 Ω

NTSC: 3.579545 MHz ± 50 Hz*

PAL: 4.43361875 MHz ± 50 Hz*

* ± 2 Hz optional

SECAM: not applicable

H drive: Pulse negative, 4 V p-p

V drive: Pulse negative, 4 V p-p

Composite sync: Pulse negative, 4 V p-p

Composite blanking: Pulse negative, 4 V p-p

Burst flag: Pulse negative, 4 V p-p

Black burst: NTSC 286 mV p-p

PAL 300 mV p-p

Audio: 400 Hz, 1 V p-p into 1 k Ω

Audio: 1000 Hz, 1 V p-p into 1 k Ω

TTL OUTPUT (8-PIN CONNECTOR)

RGB fan out 1 (positive logic)

SYNC BNC (2) and 4-pin round miniature

NTSC	POLARITY	VOLTAGE	IMPEDANCE
VIDEO	Positive (sync: negative)	1Vp-p \pm 42mVp-p (into 75 Ω load)	75 Ω
RGB	Positive	0.7Vp-p \pm 0.1Vp-p	75 Ω
SOUND	—	0.4Vp-p \pm 50mV	10k Ω
Ys	—	L 0 to 0.4V H 1 to 3V	75 Ω
Ym	—	L 0 to 0.4V H 1 to 3V	75 Ω
AV	—	L 0 to 0.4V H 3 to 5V	22k Ω

Connector: 21-pin connector (EIAJ21P)

PAL	POLARITY	VOLTAGE	IMPEDANCE
VIDEO	Positive (sync: negative)	1Vp-p \pm 42mVp-p (into 75 Ω load)	75 Ω
RGB	Positive	0.7Vp-p \pm 0.1Vp-p	75 Ω
SOUND	—	1.4Vp-p \pm 0.2Vp-p	10k Ω
Ys	—	L 0 to 0.4V H 1 to 3V	75 Ω
SLOW SW	—	L 0 to 2V H 9.5 TO 12V	10 K Ω

RGB MULTIPLE (21-PIN CONNECTOR)

REAR PANEL INPUTS

EXT video: 1 V p-p into 75 Ω

Genlock: 75 Ω loop-through

H delay: ± 2 μ s variable

Subcarrier lock range NTSC:

3.579545 MHz ± 50 Hz

PAL: 4.43361875 MHz ± 50 Hz

Subcarrier phase: 0 - 360° variable

SECAM: H and V sync

Ext. sound: 50 Hz - 100 kHz, 1 V p-p into 10 k Ω

PROGRAM SETTINGS

Up to 100 conditions in which pattern, mode switches, RF channel or frequency and signal parameters can be preset

POWER REQUIREMENTS

100, 120, 220, 240 V ac $\pm 10\%$

50/60 Hz, 55 VA (408), 60 VA (408NPS)

PHYSICAL

Size (W x H x D)

16 $\frac{3}{4}$ x 3 $\frac{1}{2}$ x 15 $\frac{3}{4}$ in.

426 x 88 x 400 mm

Weight

21 $\frac{1}{4}$ lbs., 9.7 kg

SUPPLIED ACCESSORIES

BNC-BNC Cable (LC-2027)

Spare Fuse

AVAILABLE OPTIONS

GPIB (Factory Option) (-260)

Subcarrier Frequency ± 2 Hz (-279)