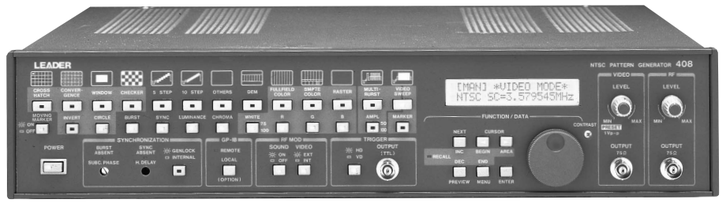
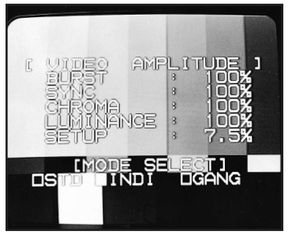
NTSC and NTSC/PAL/SECAM Test/Sync Generators



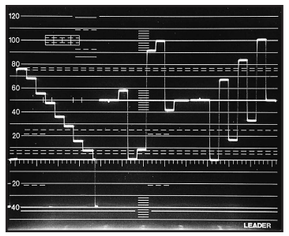
Models 408/408NPS (Model 408 shown)

- *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 menus 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)

NTSC and NTSC/PAL/SECAM Test/Sync Generators

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
Δ F 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 kΩ
Audio: 1000 Hz, 1 V p-p into 1 kΩ

TTL OUTPUT (8-PIN CONNECTOR)
RGB fan out 1 (positive logic)
SYNC BNC (2) and 4-pin round miniature

RGB MULTIPLE (21-PIN CONNECTOR)

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

Connector: 21-pin connector (EIAJ21P)

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

REAR PANEL INPUTS
EXT video: 1 V p-p into 75 Ω
Genlock: 75 Ω loop-through
H delay: ± 2 µs 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 kΩ

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 ± 10%
50/60 Hz, 55 VA (408), 60 VA (408NPS)

PHYSICAL
Size (W x H x D)
16 3/4 x 3 1/2 x 15 3/4 in.
426 x 88 x 400 mm
Weight
21 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)
SIF Overlay on Composite (-288)