

TG71 BX

TELEVISION INSTRUMENTS

TEST SIGNAL GENERATOR



General

In addition to generating over 30 standard NTSC/PAL test signals, the TG71BX programmable test signal generator can produce custom test and alignment signals from user-designed waveforms. Stand-alone operation is easy with the front panel controls. No external PC is required for the waveform programming, but a GP-IB interface is standard for interfacing the TG71BX to the host PC of an automated test system. An internal 3.5" floppy drive is provided for creating waveform backup disks. Composite video and Y/C signal outputs are standard.

Features

- Digital encoding provides optimum color signal generation and signal stability.
- Digital synthesis provides high-frequency accuracy and stability.
- Output signals available are VBS (Composite Video) and Y+S/C (Luminance + Sync, and Chroma).
- Each element of the signal waveform can be altered: Horizontal and Vertical frequencies, Level, Phase, and Subcarrier frequency.
- Waveform programming is easily executed by front panel operations or through the GP-IB interface connected to a host computer. All functions are accessible through the GP-IB.
- Standard video drive signals are provided: Sync, HD, VD, BL, SC, BF, F_H/2, Frame; variable HD, VD, Y/C delay; Genlock with a blackburst or VBS signal.
- Waveform memory stores up to 9 waveforms.

Specifications

Electrical Specifications

- Line frequency
 - NTSC 15.734 kHz (standard)
±2 kHz (in 1 Hz/1 kHz increments)
 - PAL 15.625 kHz (standard)
±2 kHz (in 1 Hz/1 kHz increments)

Note: Two field frequency operating modes (Fixed and Variable) are available. These will vary the line frequency in relation to the field frequency.

Field frequency

- NTSC 59.94 Hz (standard)
30 to 311.56 Hz,
101 to 1049 lines per frame
- PAL 50.00 Hz (standard)
25.02 to 309.41 Hz
101 to 1049 lines per frame

Note: Line frequency can be varied as indicated by the line frequency adjustments.

Subcarrier frequency

- NTSC 3.579545 MHz ± 10 Hz (standard)
-3 to +2 MHz (in 1 Hz/1 kHz/1 MHz increments)
- PAL 4.433618 MHz ± 10 Hz (standard)
-3 to +2 MHz (in 1 Hz/1 kHz/1 MHz increments)

Output signal level

	NTSC (standard)	PAL (standard)	Variable Range (in 1% increments)
Luminance	0.714V(100%)	0.700V(100%)	0% to 200%
Sync	0.286V(100%)	±0.300V(100%)	0% to 200%
Chrominance			0% to 200%
Burst	0.286V(100%)	0.300V(100%)	0% to 200%
Setup	0%(100%=0.714V)	0%(100%=0.700V)	0% to 20%

- Level accuracy ± 3% with 100% output level (±3% ± 3 mV with less than 100 mV output level)
± 1.5% with 200% output level (± 1.5% ± 5 mV with less than 200 mV output level)
- Level control (Two available modes: A and B)
 - Mode A Y+S (Luminance, Sync) control
Sync control
B+C (Color burst, Chrominance) control
B (Color burst) control
 - Mode B Y+S (Luminance, Sync) control
Y (Luminance) control
B+C (Color burst, Chrominance) control
C (Chrominance) control

Note: Y or C controls may be varied 0% to 100%.

Specifications

- Color burst signal position
 - ±2 ms from standard position
(in 0.1 μs increments)
 - Note: Simultaneously varies the burst position of the output composite signal and chroma signal, B-Y signal of the component output, and the BF drive signal.
- Color burst signal width
 - 0.09 to 7.0 μs (in 0.1 μs increments)
 - Note: Simultaneously varies the burst width of the output composite signal and chroma signal, B-Y signal of the component output, and the BF drive signal.
- Color burst vs chroma phase
 - 180° to +180°
(in 0.1 μs increments)
 - Note: Varies the “burst vs chroma phase” of the composite output.
- Sync width control 0.1 to 8.0 μs (4.7 μs standard)
- Sync position control
 - 0.4 to +4.0 μs from standard position
- Y/C delay function
 - Burst & chroma control
 - Variable by one clock unit increments.
±2 μs (in approx. 35 ns increments)
 - Chroma control
 - Variable by one clock unit increments.
±2 μs (in approx. 35 ns increments)
 - Note: These menu selections are independently set.
 - Y+S, R-Y, B-Y control
 - Each signal is variable by one clock unit increment.
0 to 10 CLK
(in approx. 35 ns increments)
 - Note: If Y+S, R-Y, B-Y are adjusted, the output chroma signal and VBS outputs are also affected.
- Frequency characteristics
 - 50 kHz to 10 MHz ±0.5 dB
- Differential gain and differential phase
 - Differential gain (DG)
 - ±0.3%
 - Differential phase (DP)
 - ±0.3°
 - Note: Measured at the standard level.
- Number of outputs
 - Composite signal (VBS)
 - 3, 75 Ω, (front 1, rear 2)
 - Luminance signal (Y+S)
 - 2, 75 Ω
 - Chroma signal (C)
 - 2, 75 Ω
 - Component signals
 - Y+S 1, 75 Ω
 - B-Y 1, 75 Ω (Option)
 - R-Y 1, 75 Ω (Option)
 - Drive signals
 - Sync 1, 4 Vp-p, 75 Ω
 - HD 1, 4 Vp-p, 75 Ω
 - VD 1, 4 Vp-p, 75 Ω
 - BL 1, 4 Vp-p, 75 Ω
 - BF 1, 4 Vp-p, 75 Ω
 - fH/2 1, 4 Vp-p, 75 Ω
 - Frame 1, 4 Vp-p, 75 Ω
 - SC 1, 4 Vp-p, 75 Ω
- Trigger output
 - HD, VD, Sync, Frame (Front panel selection)
 - Sync, Frame 1 output, 470 Ω, TTL
 - Connectors type All BNC
- Genlock
 - Input level -6 to +6 dB
 - Subcarrier lock range
 - SC ±20 Hz
 - Note: Internal Sync must be set standard for Genlock operation.
- Output signals
 - Color bars
 - NTSC Full-field, Split-field, SMPTE, Rainbow
 - PAL EBU, BBC, Split, Rainbow
 - Raster
 - White, Yellow, Cyan, Green, Magenta, Red, Blue, Chroma 100%
 - Crosshatch
 - 17 vertical lines × 13 horizontal lines
 - Positive cross (white) and negative cross (black) selectable. ±4 vertical lines; ±3 horizontal lines
 - Cross bar
 - One vertical and one horizontal bar in the center
 - Positive cross (white) and negative cross (black) selectable
 - Stair step
 - Modulation 10 step, 10 step
 - Modulation 5 step, 5 step
 - Modulation ramp, Ramp
 - * APL setting 10% to 90%
 - * Bounce rate setting 0.1 to 30.0 sec.
 - SIN²
 - T & modulation 12.5T bar
 - 2T & modulation 12.5T bar
 - T & modulation 20T bar
 - 2T & modulation 20T bar
 - Multi burst
 - NTSC 0.5 / 1.0 / 2.0 / 3.0 / 3.58 / 4.2 MHz
 - 1.0 / 2.0 / 4.0 / 6.0 / 7.16 / 8.4 MHz
 - PAL 0.5 / 1.0 / 2.0 / 4.0 / 4.8 / 5.8 MHz
 - 0.5 / 1.5 / 2.5 / 4.43 / 4.8 / 5.8 MHz
 - Chroma-multi
 - SC+750k / SC+500k / SC+250k / SC / SC-250k / SC-500k / SC-750k
 - V sweep
 - 10 kHz to 10 MHz
 - Marker output Fixed (1, 2, 4, 6, 8, 10 MHz) Variable
 - * Marker output switchable ON/OFF
 - H sweep
 - High: 0 to 10 MHz; Low: 0 to 5 MHz
 - * With markers
 - Sine wave
 - 10 kHz to 10 MHz (in 10 kHz increments)
 - Mod. sine wave
 - 10 kHz to 6 MHz is modulated into SC. (in 10 kHz increments)
 - Slant line
 - 10 kHz to 10 MHz (in 10 kHz increments)
 - Slant angle is adjustable.
 - Window
 - Size 1/2 the horizontal and vertical effective area
 - Luminance level, chroma level, and chroma phase inside and outside the window are programmable.
 - Window internal width is programmable (adjust vertical height).
 - Stair window
 - Window signal with a ±5% and 1% stair step inserted
 - Matrix
 - Matrix 1, Matrix 2

Specifications

- Waveform programming
 - Any waveform can be designed with the waveform editing functions.
 - Each function is combined with the Y, Pb, Pr signals data to create the waveform, which is stored in the Line memory.
- Line waveform memory
 - 9 lines
- Functions
 - Rise & Fall Set rise and fall times and levels.
 - SIN² Set the level, frequency, and period of Sine wave.
 - SIN² PULSE Set the level and width of SIN² pulse.
 - COPY Copy waveforms from the Internal signals.
* Additional waveforms are stored on 3.5"/2DD floppy disk.
- GP-IB interface
 - All functions (except Power) can be controlled through the GP-IB interface.
- Coding specifications
 - Sampling Frequency (of standard signals)
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 - NTSC 28.63636 MHz
 - PAL 28.375 MHz
- Data word length 10 bits = 1 Word
- Control specifications
 - Main CPU 68000
 - Panel control
 - Disk control
 - Sync control
 - GP-IB interface
 - Sub-CPU's 68000 (×3)
 - Waveform programming
- Options
 - TG71BX003 IEC107 (PAL) patterns (Floppy disk)
 - TG71BX004 IEC107 (NTSC) patterns (Floppy disk)
 - TG71BX005 GB10239-94 China new standard patterns (38 items; Floppy disk)
 - TG71BX006 SECAM test patterns (Floppy disk)
*TG71BX006 must be used with SECAM encoder CC908A.
- General Specifications
 - Power supply AC 100 to 250 V, ±10%
 - Power consumption
 - Max. 370 VA
 - Operating temperature range
 - 0°C to 40°C
 - Relative humidity 25% to 90%RH (non-dewing)
 - Dimensions 426(W) x 199(H) x 510(D) mm
 - Weight Approx. 22 kg

Disc continued

