MODELS

VSG-201D
VSG-204D

SERIAL DIGITAL SYNC GENERATORS

The VSG-201D and VSG-204D sync generators are specifically designed for use in 601 serial digital and hybrid analog/digital applications in both 525/60 and 625/50 systems. A high-stability TCXO provides the necessary accuracy for the most demanding requirements. All models have infinite genlock timing range, and four analog blackburst outputs for system timing plus constant digital black and digital test signals. Two of the black burst outputs in the VSG-204D have independently adjustable timing over the entire range. All models have stereo analog tone, and the VSG-204D provides both embedded and separate AES/EBU tone (or silent) with level adjustment and channel placement via front panel control. For total flexibility, the VSG-204D also has 10 selectable test signals and can be set to simultaneously output NTSC and PAL blackburst all timed together with the AES/EBU audio.

The VSG-201D and VSG-204D are ideal for use as either a master or slave sync generator in any system, making Harris the only choice for a digital sync generator to meet both your needs and your budget.

Provide reliable protection for your system during a primary reference signal loss by adding a VSX-11D multi-format sync changeover to your pair of sync generators.

- RoHS COMPLIANT

FEATURES

- High-stability TCXO for ±1 Hz subcarrier accuracy
- Infinite genlock range - locks to any field, any line and any phase
- Four analog blackburst outputs follow genlock (VSG-201D)
- Two analog blackburst outputs follow genlock
- Two independently adjustable blackburst outputs (VSG-204D)
- EDH added to all serial digital video outputs
- Constant Digital Black output
- Constant Digital Bars output (selectable 75% or 100%)(VSG-201D)
- Ten front-panel-selectable test signals (VSG-204D)
- Stereo analog tone output - click added to identify one channel

- Embedded and AES/EBU tone and silent output (VSG-204D)
- Standards available: 525 and 625, NTSC-J optional
- Multi-format Sync Changeover, VSX-11D, available to provide protection against primary reference signal loss

PRODUCT DETAILS

VSG-201D

The VSG-201D provides ±1Hz Temperature Compensated Crystal Oscillator for high stability as a master sync generator, plus genlock is standard for use as an economical, high quality slave unit. The VSG-201D includes infinite genlock range (to either NTSC or PAL), four analog black burst outputs, analog stereo tone output, plus constant 601 Digital Black and Digital Bars (75% or 100%) output.

- High Stability TCXO for ±1 Hz accuracy
- Genlock range is infinite - lock & phase
- Four analog blackburst outputs follow genlock
- Constant Digital Black output
- Constant Digital Bars output
- Stereo analog tone output
- 27 MHz clock output
- Front panel LEDs for status indication
- All controls for system set-up on front panel

VSG-204D

The top-of-the-line VSG-204D includes AES/EBU outputs, embedded audio and independently adjustable black outputs. For dual standard (525/625) facilities, the VSG-204D can provide simultaneous, independently adjustable black outputs in both NTSC and PAL. The genlock operation may even be conveniently split between NTSC and PAL inputs for multi-format facilities. Finally, ten front panel selectable digital video test signals make this instrument ideal for system testing.

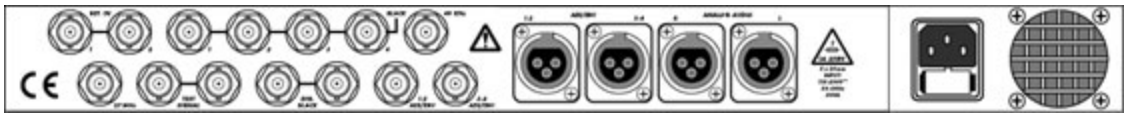
- High Stability TCXO for ±1 Hz accuracy
- Genlock range is infinite - lock and phase
- Two blackburst outputs follow genlock
- Two blackburst outputs independently adjustable and independently set for NTSC or PAL (± 2 fields NTSC, ± 4 fields PAL)
- Constant Digital Black output
- 10 serial digital video test signals
- Stereo analog audio tone output and embedded digital audio
- AES/EBU audio outputs on XLR & BNC
- 48 kHz clock output
- 27 MHz clock output

IMAGES/DIAGRAMS

Back Modules

VSG-201D

VSG-204D



SPECIFICATIONS

Specifications and designs are subject to change without notice.

Video

Serial Digital Outputs	Color bars - two (test signals in VSG-204D) Black - two
Connectors	BNC 75 ohms, female
Resolution	10 bit
Format	270 Mb/s component per SMPTE 259M-1993, and ITU-BT R.601
Sample Rate	13.5 MHz Y, 6.75 MHz C_R, C_B
Output Level	800 mV ±10%, excluding overshoots
Dc Offset	0.5V maximum
Rise and Fall Time	400 ps to 1.5 ns
Jitter	≤0.25 ns over a one line period, (non-genlocked)
Return Loss	≤-15 dB, 5 to 270 MHz
Error Generation	EDH (active and full field) embedded in all serial digital outputs
Video Format	525/60 Hz line and 625/50 Hz line dependent upon genlock input signal or front panel setting
Color Bars	75% or 100% equivalent saturation, determined by a front panel setting. For 60 Hz field rates, SMPTE bars are the 75% setting.

Four Analog Blackburst Outputs

Sync Amplitude	40 IRE ±1 IRE (NTSC) 43 units ±1 unit (PAL)
Black Level	7.5 IRE ±1IRE (NTSC) 0 units (PAL)
Sc/H Phase	0° ±10°
Phasing	Field aligned with genlock reference signal
Frequency Stability	Subcarrier ≤1.0 Hz from +10°C to +40°C (non-genlocked)

Timing	Follows serial output timing via genlock controls

Genlock

Input	Stable black burst, 525/60 Hz line, 429 mV ±6 dB or 625/50 Hz line, 450 mV ±6 dB
Return Loss	≤-40 dB, DC to 5 MHz
Adjustment Range	±2 fields in 60 Hz; ± 4 fields in 50 Hz in three front panel control ranges–coarse, medium, and fine
Resolution	Infinite
Jitter	≤0.5° at either 3.58 MHz or 4.43 MHz
Color Framing	Correct with reference SC/H phase of 0° ±45° NTSC; 0° ±20° PAL
Capture Range	Nominal subcarrier frequency ±50 Hz

27 MHz Output

Connector	BNC 75 ohms, female
Output Level	800 mV ±10%, excluding overshoots
DC Offset	0 ±0.5 V
Overshoots	≤10 % maximum
Rise and Fall Time	400 ps to 1.5 ns
Frequency	27 MHz ±0.2 ppm from +10°C to +40°C (non-genlocked)

Analog Audio

Channels	Two simultaneous; left channel has a click for ID purposes
Level	+4 dBm, balanced
Frequency	1 kHz
Connector	Two XLR, one for left; one for right

Power

Power Input	90 - 264 VAC, 50/60 Hz, nominal
Power Consumption	50 VA, typical

Environmental

Operating Temperature	0° to 50°C
Storage Temperature	–50° to 85°C
Humidity	90% maximum (non-condensing)

Mechanical

Dimensions	Height: 1.75" (4.5 cm)
	Width: 19" (48.3 cm)
	Depth: 10" (25.4 cm)
Weight	13 lb (5.9 kg)

Standard Accessories

Operation & Service Manual

Rackmount Kit
Power Cord

VSG-204D

Embedded Audio

Channels	Four simultaneous; may be set to any one of the four groups from front panel
Sample Rate	48 kHz, synchronous with video sampling
Resolution	20 bits
Signals	All channels set to one of two tones, either 800 Hz or 1 kHz, adjustable from front panel. 1,2,3 or 4 channels may be set to silent
Levels	Adjustable from –10 dBfs to –20 dBfs in 2 dB steps from front panel. Internal switch adds or subtracts 10dBfs from front panel setting

AES/EBU Audio

Channels	Four simultaneous
Sample Rate	48 kHz, synchronous with video sampling
Resolution	20 bits
Signals	All channels set to one of two tones, either 800 Hz or 1 kHz, adjustable from front panel (tracks embedded audio settings) 1,2,3 or 4 channels may be set to silent
Levels	Adjustable from –10 dBfs to –20 dBfs in 2 dB steps from front panel (tracks embedded audio settings). Internal switch adds or subtracts 10 dBfs from front panel setting
Connector	Two BNCs, unbalanced out; Two XLR transformer coupled, balanced out
Adjustable Blackburst Outputs	Two of the four blackburst outputs are phase adjustable, ± 2 fields NTSC or ±4 fields PAL, all lines and infinite SC phase
Test Signal Outputs	Front panel selection of the following test signals: Color Bars, 100% full field Color Bars, 75% full field (625) Color Bars, 75% SMPTE (525) 10 Step Convergence test pattern Timing test with cosited markers and blanking markers Shallow Ramp Limit Ramp Multiburst SDI Checkfield Bow Tie pattern
Blackburst Assignment	Each of the two independently adjustable blackburst outputs may be set to always output NTSC or PAL blackburst rather than follow master genlock. The blackburst timing is always coherent with the AES/EBU timing and phase
Genlock Assignment	The loop through genlock input may be set, via an internal jumper, to allow two terminating genlock inputs rather than one loop through. This will allow the permanent connection of an NTSC genlock signal to one input and a PAL genlock signal to the second input. The front panel switches then select the 525 or 625 genlock source for rapid change over in facilities where this function is necessary