

VSG-201D, VSG-204D

SERIAL DIGITAL SYNC GENERATORS



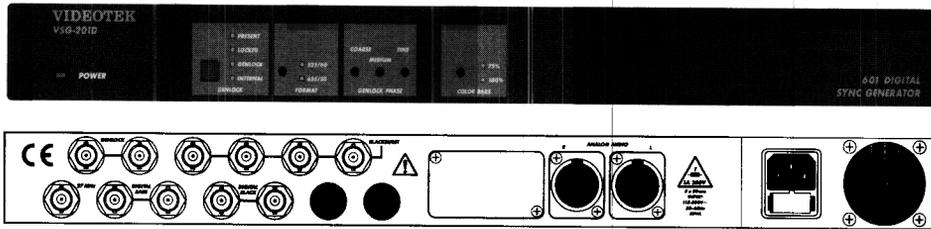
VSG-204D

The **VSG-200D** family of sync generators is 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 blackburst 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-200D Series is ideal for use as either a master or slave sync generator in any system, making Videotek the only choice for a Digital Sync Generator to meet both your needs and your budget.

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 ... plus
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)
- Five year warranty - covering all parts and labor

VSG-201D



The most affordable model in the VSG-200D family, the **VSG-201D** provides ± 1 Hz 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 blackburst outputs, analog stereo tone output, plus constant 601 Digital Black and Digital Bars (75% or 100%) output.

FEATURES

- 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
- Embedded digital audio
- 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.

FEATURES

- 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

VSG-201D/204D SPECIFICATIONS

VIDEO

SERIAL DIGITAL OUTPUTS:

Color bars - two (test signals in VSG-204D)
Black - two

CONNECTORS:

75Ω BNC, female

RESOLUTION:

10 bit

FORMAT:

270 Mb/s component per
SMPT 259M-1993, and ITU-BT R.601

SAMPLE RATE:

13.5 MHz Y, 6.75 MHz Cr, Cb

OUTPUT LEVEL:

800 mV ±10%, excluding overshoots

DC OFFSET:

0.5V maximum

RISE/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 ±1 IRE (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 blackburst,
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:

75Ω BNC, female

OUTPUT LEVEL:

800 mV ±10%, excluding overshoots

DC OFFSET:

0 ±0.5 V

OVERSHOOTS:

≤10% maximum

RISE/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)

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.

VSG-204D 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 transformer
coupled XLR balanced out.

VSG-204D

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.

VSG-204D

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.

ACCESSORIES

Instruction/Service Manual