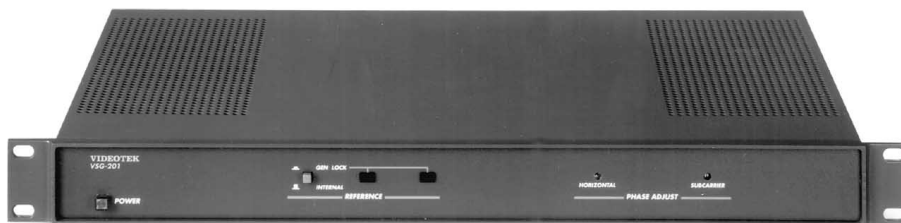


# VSG-201

## RS-170A COLOR SYNC GENERATOR



US Patent 4,811,097

The **VSG-201** is an RS-170A Color Sync Generator designed with the accuracy and drift-free performance you require, providing digitally-generated reference signals for composite analog NTSC systems. Six isolated blackburst outputs provide reference for multiple devices. Discrete drive pulses for special requirements are also provided. An internal SMPTE color bar generator is provided to aid in video system alignment, and a 1 kHz audio tone generator is provided for establishing reference audio levels and unity gain. The VSG-201 is ideal for use as either a master or slave sync generator in any system.

### FEATURES

- RS-170A Specifications
- Genlock - Guaranteed SC/H phase regardless of input phase
- Genlock input loss / presence indication on front panel
- Four times subcarrier composite analog SMPTE color bars
- Proprietary phase correction algorithm guarantee "textbook" accuracy of color bar outputs
- Six isolated blackburst outputs
- Color field 1 ID pulse output
- Audio tone outputs, balanced and unbalanced
- Front panel adjustments for Genlock, H phase and SC phase
- Selectable vertical blanking width (lines 15 to 21, internal)
- +4 dBm, 1 kHz tone output, 600  $\Omega$  balanced or unbalanced outputs
- Rackmountable
- Standards available: NTSC, NTSC-J optional

## VIDEO

### OSCILLATOR STABILITY:

TCXO (internal mode)  $\pm 2$  Hz @ 20°C

### NON-GENLOCKED MODE:

Meets EIA RS-170A (SC/H phased)

### GENLOCK:

Selectable Genlock or Internal.  
Loop through  
EIA RS-170A input requires a blackburst video signal of 40 IRE of sync  $\pm 6$  dB. SC/H phase of output guaranteed regardless of input phase.

### RETURN LOSS:

>40 dB to 4 MHz

### INPUT IMPEDANCE:

100 k $\Omega$  bridging

### GENLOCK JITTER:

(with stable RS-170A blackburst input)  
H. Sync lock, <2 ns  
Chroma lock, <1°

### FRONT PANEL PHASE ADJUST:

Horizontal,  $\pm 2.24$   $\mu$ s  
Subcarrier, >360°

## OUTPUTS

### BLACKBURST: (Color Black)

Six isolated outputs  
Digitally generated RS-170A composite video containing composite sync, burst and 7.5 IRE (nominal) black level

### AMPLITUDE:

47.5 IRE  $\pm 1$  IRE

### DC OFFSET:

0V  $\pm 100$  mV

### RESIDUAL SUBCARRIER:

$\leq 1$  IRE

### COLOR BARS:

Four times subcarrier composite analog SMPTE color bars. Proprietary phase correction algorithm guarantees "textbook" accuracy of color bar outputs.  
U.S. Patent #4,811,097

### BAR ACCURACY:

Phase <1° of nominal phase

### DC OFFSET:

0V  $\pm 50$  mV

### LUMINANCE:

100% white bar, 100 IRE of nominal values

### ALL OTHER STEPS:

$\pm 1\%$  at 1V p-p output

### RESIDUAL SUBCARRIER:

$\leq 1$  mV

### OVER/UNDERSHOOT & RINGING:

<1% at 1V p-p output

## PULSE OUTPUTS

### RISE TIME:

140 ns  $\pm 20$  ns, 10 to 90% points

### FALL TIME:

140 ns  $\pm 20$  ns, 10 to 90% points

### POLARITY:

Negative pulse

### AMPLITUDE:

0V to -4V  $\pm 3\%$  terminated, 75 $\Omega$

### OVER/UNDERSHOOT & RINGING:

$\leq 1\%$  at 4V p-p output

### RESIDUAL SUBCARRIER:

< 10 mV p-p at 4V p-p output

### CONNECTORS:

BNC female

### COMPOSITE SYNC:

Two isolated outputs

### COMPOSITE BLANKING:

Vertical: 15 to 21 lines selectable by internal rotary switch. Factory set to 21 lines.

Horizontal: 10.9  $\mu$ s, adjustable  $\pm 1$   $\mu$ s

### BURST FLAG:

One output, 2.5  $\mu$ s  $\pm 35$  ns

### H. DRIVE:

One output, 6.2  $\mu$ s  $\pm 35$  ns

### V. DRIVE:

One output, 9 lines

### COLOR FRAME 1 ID PULSE:

One output, 1 line wide at line 10 color frame A, field 1

### SUBCARRIER:

One output  
3.579545 MHz  $\pm 10$  Hz  
2V p-p  $\pm 5\%$  terminated, 75 $\Omega$

## ENVIRONMENTAL

### OPERATING TEMPERATURE:

0° to 50°C

### STORAGE TEMPERATURE:

-50° to 75°C

### HUMIDITY:

90% maximum (non-condensing)

## POWER

### INPUT:

108-132, 216-250 VAC,  
50/60 Hz, nominal

### CONSUMPTION:

34 VA, typical

### CONNECTION:

3-wire power cord, IEC 320

## MECHANICAL

### DIMENSIONS:

Height: 1.74" (4.4 cm)  
Width: 19.0" (48.3 cm)  
Depth: 10.75" (27.1 cm)

### WEIGHT:

10 lb (4.54 kg)

## STANDARD ACCESSORIES

Operation & Service Manual  
Rackmount Kit  
Power cord

## AUDIO

### OUTPUTS:

One RCA unbalanced single ended  
One XLR balanced, female

### FREQUENCY:

1 kHz  $\pm 5\%$ , sine wave

### LEVEL:

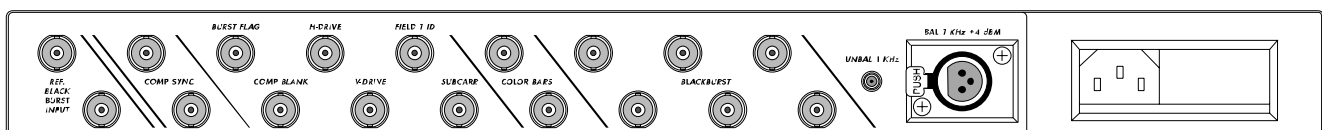
+4 dBm  $\pm 0.5$  dB

### IMPEDANCE:

600 $\Omega$  nominal

### THD:

$\leq 1\%$



VSG-201 BACK PANEL