

VSS-12

12x1 Switcher Video / Stereo-Audio

Instruction Manual



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VSS SERIES SWITCHERS

RECEIVING:

It is recommended that the switcher is inspected immediately after receipt. Report any damage to the shipping company and to SIGMA ELECTRONICS, INC. Shipping cartons should be saved for use of reshipping the unit.

GENERAL:

This manual provides information on the VSS Switcher Series. Model VSS-12 is designed for composite video on BNC connectors and stereo balanced audio via three wire screw terminals. All units are 12 input by 1 output video and stereo audio non-synchronous switchers. The rear of the frame is configured with video connectors on the left side and audio connections on the right side. The stereo audio configuration is left channels across the top row and right channels across the bottom row. Video and audio outputs are located in the center of the rear panel.

The control panel is provided on the front of the frame. Twelve momentary push buttons are used to select the source device in an Audio-Follow-Video mode. Switcher status is provided by illumination of an LED in each of the source buttons.

POWER:

An IEC-320 AC power plug is provided on the rear of the frame. The cord set supplied for 120 VAC applications is a standard 3 conductor North American plug and IEC 320 C13 receptacle which connects to the switcher. The 230 VAC configurations are supplied with a standard 2 pole 3 wire grounding Euro plug cord set. It is recommended that the cord set is securely plugged into the switcher first, then connected to the power source.

The operational voltage of the switcher may be selected between 120 VAC and 230 VAC via the cord set, fuse rating and orientation of J3. This seven position header (J3) is located on the inside of the unit on the front panel PCB. Before changing the voltage configuration the unit should be powered off. The J3 header will have the black wire towards the top for 120 VAC applications or the white wire towards the top for 230 VAC applications. Cord set supplied with each unit will be designed for the power option set by the factory.

FRAME:

The single rack unit frame is designed for mounting in a standard EIA 19 inch rack mount cabinet. The frame's depth is compatible with video production consoles, vertical equipment cabinets, small desk top racks as well as dubbing and duplication racks. The shallow depth of this device is ideal for custom cabinet applications where space is limited.

CONNECTIONS:

The rear PCB provides video and audio connectors. The rear panel also has a power plug as described in the "POWER" section above. The type of video or audio connector is dependent upon the model configuration.

VSS-12 BNC connectors are used for video signals.

3 Pin screw terminals are used for balanced or unbalanced stereo or mono audio signals.

The BNC inputs are terminated into a 75Ω load. The video output should be connected to a 75Ω terminated destination device. Video cables should be strain relieved to minimize stress on the BNC connectors.

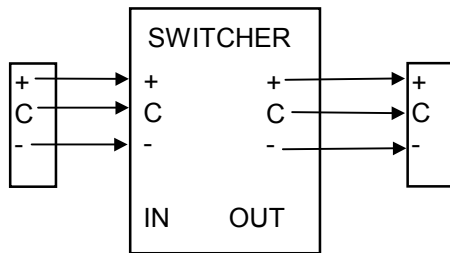
The three pin screw terminals provide a means of attaching either balanced or unbalanced audio devices. Refer to the audio wiring diagram in "Audio Configurations" for balanced and unbalanced wiring schemes. The screw terminal opens on the side of the connector towards the horizontal center line of the rear panel. The wire gauge should be within 26 to 12 AWG and stripped to expose 0.3 inch (7.5 mm) of bare lead. Tin the lead before inserting into the connector. Note the (+) and (-) symbols on the PCB to maintain phase relationship of all input signals and output signal. The audio cables should be strain relieved to minimize the stress on the screw terminals.

If required, the output can be terminated by inserting a 600Ω 1/2W resistor across the (+) and (-) pins. The 600Ω resistor will provide unity gain if the destination device is a high impedance input. If the inputs are not fully populated and unused inputs are selected in the application of the switcher, it is recommended to attach a 600Ω resistor across the unused inputs to reduce any audible "click" or "pop" when switching from an active input to an inactive input.

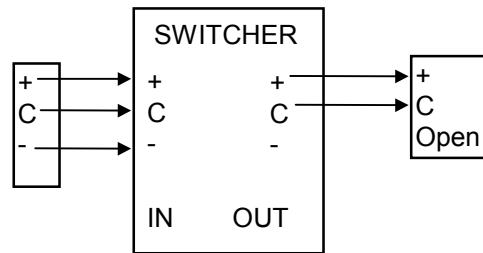
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AUDIO CONFIGURATIONS:

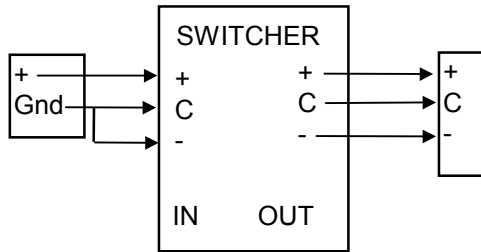
The source and destination audio equipment must be evaluated to determine if they are Balanced or Unbalanced configurations. Refer to the drawings provided to select the proper audio wiring. Balanced and unbalanced sources may be used but the output level will change as noted below.



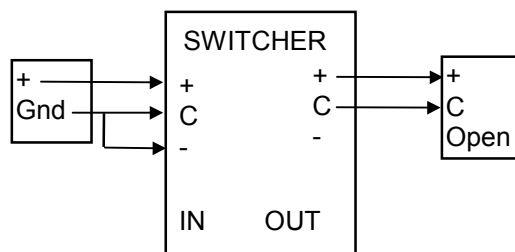
Balanced In to Balanced Out
 $V_{out} = \text{Unity Gain @ } 600\ \Omega$
 $V_{out} = +3.5\ \text{dB @ HiZ}$



Balanced In to Unbalanced Out
 $V_{out} = -6\ \text{dB @ } 600\ \Omega$
 $V_{out} = -2.5\ \text{dB @ HiZ}$



Unbalanced In to Balanced Out
 $V_{out} = \text{Unity Gain @ } 600\ \Omega$
 $V_{out} = +3.5\ \text{dB @ HiZ}$



Unbalanced In to Unbalanced Out
 $V_{out} = -6\ \text{dB @ } 600\ \Omega$
 $V_{out} = -2.5\ \text{dB Loss @ HiZ}$

Inputs of several switchers can be bridged if required. It is recommended to use a distribution amplifier if a common source must feed more than one switcher. If a distribution amplifier is not available the switcher's inputs may be bridged with the following notes.

Note 1: When multiple switchers have the inputs bridged, power must be applied to all switchers to reduce loading of the source signal.

Note 2: Slight signal loss will be experienced when bridging inputs. Typical loss is -0.2 dB when bridging three units and -0.4 dB when bridging six units. This assumes each output is terminated at 600Ω.

CONTROL PANEL:

The front panel control of this switcher series is very easy to use. A single push button is provided for each of the twelve sources. The sources switch in an audio-follow-video mode. The local control panel is the only control option on this switcher.

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SPECIFICATIONS:

Video

Input Impedance	75 Ω terminated, ac coupled
Input Return Loss.....	>40 dB to 5 MHz
Frequency Response.....	\pm 0.1 dB from 1 to 20 MHz
Bandwidth.....	120 MHz minimum @ -3 dB
Gain accuracy.....	< \pm 1%
Hum & Noise.....	<0.1 mV rms (-80 dB), 10 MHz bandwidth
Differential Phase.....	<0.1 $^{\circ}$
Differential Gain.....	<0.2%
Crosstalk	<-55 dB to 5 MHz, input under test terminated, all other channels driven
All Linear Distortions.....	<0.5%
DC Offset.....	< \pm 100 mV

Audio

Input Impedance	66 k Ω balanced
Bandwidth.....	150 kHz
Frequency Response.....	\pm 0.1dB to 25 kHz; \pm 0.5dB to 100 kHz
Hum & Noise.....	<-95 dBm balanced; 22 kHz low pass filter, input term.
Total Harmonic Distortion + Noise.....	<0.007% @ +24 dBm balanced
Crosstalk	<-95 dB @ 1 kHz, <-70 dB @ 20 kHz balanced, input term. all other driven
Maximum Output Level.....	+24 dBm balanced
Gain Accuracy	< \pm 0.2 dB balanced
Common Mode Rejection.....	>40 dB balanced
Output Impedance	300 Ω balanced
Connectors	3 Pin screw terminal

ELECTRICAL:

Power requirement.....	120 or 230 VAC, 50/60 Hz.
Power Consumption.....	8 Watts maximum
Fuse.....	120 VAC; 80 mA Slo-Blo $\text{\textcircled{R}}$, 5x20 mm 230 VAC; 40 mA Slo-Blo $\text{\textcircled{R}}$, 5x20 mm
Connector	IEC-320 AC power inlet with integral fuse holder

MECHANICAL:

Dimensions.....	1.70" H x 19" W x 4.2" D (43.2 H x 483 W x 356 D mm)
Weight	3.5 lbs. (1.59 kg) net, 4.5 lbs. (2.04 kg) shipping

All specifications, drawings, dimensions, weights and other details are subject to change without notification. Information is intended to give a general performance and operation guideline of the product.

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