

CVG-SW21C CSG-SW21S

2x1 Video/s-Video/Audio Switchers

Several words on Video/Audio Switchers:

A video/audio switcher usually switches between several sources and one or more acceptors. A switcher that allows several inputs to be connected to several outputs simultaneously is called a matrix switcher. Switchers may be of the electronic or mechanic type. Most matrices are of the active electronic type, with many crosspoints.

Vertical Interval Switching, often used in video, assures that the transition from one video source to the other (like switching between two *Genlocked* cameras) is smooth and without interference. The switching and changeover is done during the blanked vertical interval period, where the transition is hidden from the eyes.

Vertical Interval switching is needed when recording or transmitting a video program involving several video sources, as in live broadcast, to assure "clean", undisturbed picture transitions. The switched sources should be genlocked. Matrices and switchers may be RS-232 controlled. RS-232 control is one way of remotely controlling a video or audio device (Switcher, SEG etc.) using a personal computer with a serial port or another device that uses a similar communication protocol. The simplest connection between the RS-232 controller and the controlled device uses two wires (TRANSMIT, RECEIVE) and a common ground wire. Another way for remote controlling a switcher is via a wired "contact-closure" system. In this way, remote switches or relays close a circuit between a common signal (usually ground) and one of the relevant pins.

There are many factors affecting quality when signals are transmitted from a source to an acceptor:

- Source and acceptor signal handling capability - different brands offer different quality and the final result is determined by the performance of the lowest quality part. Using a low quality source will always result in low quality duplicates.

- The connection cables should be of the best possible quality. Low quality cables are susceptible to interference, deteriorate signal quality due to poor matching and cause elevated noise levels.
- Sockets and connectors of the sources and acceptors - so often ignored, should be of best quality, as "Zero Ohm" connection resistance should be assured. Sockets and connectors should match the required impedance (75 ohms in video). Cheap connectors tend to rust, causing breaks in the signal path.
- Amplifying circuitry quality is extremely important and is needed for high linearity, low distortion and low noise operation.
- The distance between source and acceptors plays a major role in the final result. If there are long distances (over 15 meters) between sources and acceptors, special means should be taken in order to avoid cable loss, such as using higher quality cables or if necessary adding line amplifiers.
- Interference from neighboring appliances may have an adverse effect on signal quality. Balanced audio lines are less prone to interference, but unbalanced audio and video lines should be installed far away from mains carrying cables, electric motors, transmitters etc. even when cables are shielded.

The CVG-SW21C and CVG-SW21S

The **CVG-SW21C** and **CVG-SW21S** are high quality, 2x1 Video/s-Video/Audio Vertical Interval switchers in compact desktop enclosures. Audio is always switched together with the corresponding video signal. The **CVG-SW21C** switches video and audio, while the **CVG-SW21S** switches s-Video and audio. High quality switching components provide excellent isolation between inputs. The machines may be used even in full broadcast applications due to the high performance design of the machines. The machines maybe controlled by front touch-switch control as well as via remote contact closure control.

1. RACK MOUNTING

The switchers may be rack-mounted in a standard 19" (1U) EIA rack assembly. The machines require an optional special rack adapter. For

installation procedure, follow the instructions in the installation guide enclosed with the adapter.

2. CONNECTING to VIDEO DEVICES

Video and s-Video sources and output devices (such as monitors or recorders) may be connected to the switchers through the BNC (**CVG-SW21C**) or the 4P (**CVG-SW21S**) type connectors located on the back of the machines.

3. CONNECTING to AUDIO DEVICES

Audio sources and output devices, such as amplifiers or recorders, may be connected to the switcher through the RCA type connectors located on the back panels of the machines.

4. USING the VIDEO /S-VIDEO/AUDIO SWITCHERS

4.1 Controlling the Switchers

Operation of the switchers is as follows:

- ☒ Connect up to two video/s-Video/stereo-audio sources to the input sockets of the switcher.
- ☒ Connect a video/s-Video/stereo-audio acceptor to the output socket of the switcher.
- ☒ Connect the switchers to the 12 VDC power source (the provided wall transformer) and activate the machine by pressing the POWER switch located on the front panel of the machines.
- ☒ Operate sources and acceptors.
- ☒ Press one of the buttons marked “1” or “2” on the front panel to select the required input to be switched to the output. These buttons correspond to the input connections as marked on the back panel.
- ☒ For remote contact closure applications, remove the male connector from the REMOTE socket on the back of the machine, and connect three wires to the connector. Use color-coded wires for easier identification. Reinsert the male connector firmly into its place in the REMOTE socket. The connector has three pins as in diagram 1 below. When pin 1 (common) is momentarily connected to pin 2, the machine switches to input 1. When pin 1 is momentarily connected to pin 3, the machine switches to input 2.

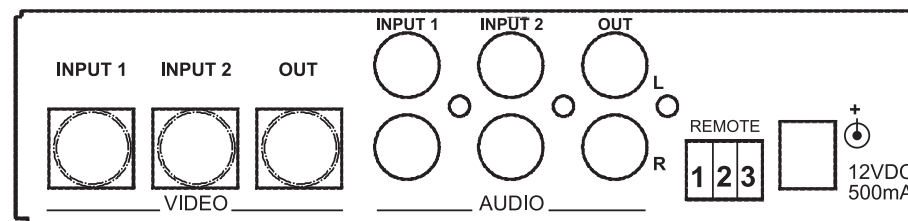


Diagram 1: Remote contact closure pins identification

Technical Specifications:

INPUTS:	CVG-SW21C:	2 Video, 1Vpp/75 ohms on BNCs. 2 stereo audio (or balanced mono), +30 dBm typ. on RCAs.
	CVG-SW21S:	2 s-Video (Y/C) , 1Vpp/75 ohms (Y), 0.3Vpp/75 ohms (C) , on 4P type connectors. 2 stereo audio (or balanced mono), +30 dBm typ. on RCAs.
OUTPUTS:	CVG-SW21C:	1 Video, 1Vpp/75 ohms on a BNC. 1 stereo audio (or balanced mono), +30 dBm typ. on RCAs.
	CVG-SW21S:	1 s-Video (Y/C) , 1Vpp/75 ohms (Y), 0.3Vpp/75 ohms (C) , on a 4P type connector. 1 stereo audio (or balanced mono), +30 dBm typ. on RCAs.
BANDWIDTH (VIDEO):	CVG-SW21C:	330 MHz –3dB.
	CVG-SW21S:	310 MHz –3dB (Y).
BANDWIDTH (AUDIO):		> 100 kHz, -1dB.
NON LINEARITY (Y):		0.05% (CVG-SW21C), 0.1% (CVG-SW21S).
DIFF. GAIN:		0.03% (CVG-SW21C), 0.05% (CVG-SW21S).
DIFF. PHASE:		0.05 Deg. (CVG-SW21C), 0.05 Deg. (CVG-SW21S).
S/N RATIO:		75.5 dB (CVG-SW21C), 76.5 dB (CVG-SW21S).
K-FACTOR:		<0.05% (CVG-SW21C), <0.1% (CVG-SW21S).
VIDEO CROSSTALK:		-60dB (CVG-SW21C), -57dB (CVG-SW21S).
SWITCHING:		Vertical Interval.
CONTROL:		2 front-panel touch switches, contact closure.
DIMENSIONS:		16.5cm X 12cm X 4.5cm (6.5" x 4.7" x 1.8", W, D, H.).
POWER SOURCE:		12 VDC, 500mA
WEIGHT:		0.55 Kg. (1.22 Lbs.) Approx.
ACCESSORIES:		12 Volts Power Supply.
OPTIONS:		Rack mount kit.

CVG-SW21C
CVG-SW21S
INSTRUCTION MANUAL