OMX-9053, 9054, 9055
Passive 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 a 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.

Adding inputs, outputs or both may extend a matrix switcher. In order to add OUTPUTS to a matrix setup, a second switcher is added, and the inputs of both matrices are connected in parallel (while assuring proper input termination and avoiding double termination).

In order to add INPUTS to an existing matrix, a second machine is connected - paralleling the outputs of both machines. When a matrix is to be extended in both directions, both INPUTS and OUTPUTS are paralleled using four or more machines.

A matrix can be extended only if it is designed as an extendable matrix, e.g., inputs should be looping and outputs should be able to be internally disconnected or become "floating".

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.

Equipment Cables And Solutions

Video recording and playback frequently involve the use of several devices, such as: Video Cassette Recorders, Video Disc Players. Cameras, Video monitors, Video processors, Special Effects Generators, Live or Satellite Feeds or any combination of the above.

When hooking up a complex setup of several devices, you may find yourself in a maze of wires, which is difficult to manage, cumbersome and possibly dangerous.

How Do I Get Started?

The fastest way to get started is to take your time and do everything right the first time. Taking 15 minutes to read the manual may save you a few hours later. You don't even have to read the whole manual. At the beginning of each section, you'll find an overview of the section. So if the section doesn't apply to you, you don't have to spend your time reading it.

UNPACKING AND CONTENTS

The items contained in your switcher package are listed below. Please save the original box and packaging materials for possible future transportation and shipment of the Switcher.

- ⊠ Switcher
- ⊠ User Manual
- ⊠ 4 rubber feet

For additional information regarding optional cables and additional accessories, contact your dealer.

Getting to Know Your OMX-9053 Switcher

The **OMX-9053** is a precision mechanical 8x4 video stereo audio switcher, for use in every application where easy and fast video/audio source and acceptor selection is needed. The **OMX-9053** is housed in a professional 19" rack mountable enclosure.

Getting to Know Your OMX-9054 Switcher

The **OMX-9054** is a precision mechanical 8x4 s-video stereo audio switcher, for use in every application where easy and fast s-Video (Y/C)/audio source and acceptor selection is needed. The **OMX-9054** is housed in a professional 19" rack mountable enclosure.

Getting to Know Your OMX-9055 Switcher

The **OMX-9055** is a 4x4 video/stereo audio Matrix Switcher that uses no power due to its purely mechanical design. It is the first true matrix of its kind allowing four different simultaneous cross points of video and audio stereo, though only one output can be connected to any one source. The **OMX-9055** is the perfect solution for any video/audio switching application, ideal in the studio and/or field. Using a highly sophisticated design, it does not allow the connection of more than one video source to a specific output. The **OMX-9055** is housed in a 19" rack-mountable enclosure.

INSTALLATION

Rack Mounting

Each of the mechanical switchers included in this manual may be rack-mounted in a standard 19" (1U) EIA rack assembly. **OMX-9053**, **OMX-9054** and **OMX-9055** include rack "ears" at the ends of the front panel. To mount any of them, simply place the rack ears against the rack rails of your rack, and insert standard screws through each of the four corner holes in the rack ears. The switchers in this manual do not require any spacing above or below them for ventilation.

CONNECTING TO VIDEO DEVICES

Video sources and output devices (such as monitors or recorders) may be connected to the switchers through the BNC type connectors located on the back of the machines (models **OMX-9053**, and **OMX-9055**), or through the 4P type connectors (**OMX-9054**). Please keep in mind that the output signal format will match that of the input signal format. (Example: If Y/C is input, then Y/C is output.)

CONNECTING TO AUDIO DEVICES

Audio sources and output devices, such as amplifiers or recorders, may be connected to all the switchers through the RCA type connectors.

USING THE SWITCHERS

Controlling the Switcher

The switchers in this manual do not need to be activated, since they do not require any external power.

NOTE

The operation of all the switchers described in this manual is similar. The OMX-9053 operation is described and may be applied accordingly to the others.

Operation of the **OMX-9053** switcher is as follows:

➢ Connect up to eight video/stereo-audio sources to the input sockets of the switcher.
➢ Connect up to four video/ stereo-audio acceptors to the output socket of the switcher.
➢ Press one of the input selecting buttons marked "1", "2" etc. on the front panel to select the required input to be switched, then, press one of the output selecting buttons marked "1", "2" etc. on the front panel to select the required output to be connected to this input. These buttons correspond to the connections as marked on the back panel.
➢ Operate sources and acceptors.

The **OMX-9055** operates in a similar way but allows up to 4 different interconnections made at any given time.

Technical Specifications:

	OMX-9053	OMX-9054	OMX-9055
Structure	8x4	8x4	4x4
Inputs	8 video 1Vpp /75ohm on BNCs 8 stereo audio up to 36 Vpp on RCAs	8 s-video (Y/C), 1Vpp/75ohm (Y), 0.3Vpp/75ohm (C) on 4P connectors 8 audio stereo up to 36Vpp on RCAs	4 video 1Vpp /75ohm on BNCs 4 stereo audio up to 36 Vpp on RCAs
Outputs	4 video 1Vpp /75ohm on BNCs 4 stereo audio up to 36 Vpp on RCAs	4 s-video (Y/C), 1Vpp/75ohm (Y), 0.3Vpp/75ohm (C) on 4P connectors 4 audio stereo up to 36Vpp on RCAs	4 video 1Vpp /75ohm on BNCs 4 stereo audio up to 36 Vpp on RCAs
Switching system	Mechanical, "Break-before-Make"	Mechanical, "Break-before-Make"	Mechanical, "Break-before-Make"
Frequency response	Video: 200MHz± 2dB, Audio: DC-100KHz, -1dB	Video: 200MHz ± 2dB Audio: DC-100 KHz, -1dB	Video: 220MHz ± 2dB Audio: DC-100 KHz, -1dB
Crosspoints	32 for video, 32x2 for audio, 1 set active at a time	32 for s-video, 32x2 for audio, 1 set active at a time	16 for video, 16x2 for audio, 4 sets active at any given time
Source isolation	Video: -42dB (Y) 60dB (C). Audio: -40dB	Video: -42dB (Y) 60dB (C). Audio: -40dB	Video: -46dB/ 5MHz Audio: -40dB, 1KHz
Dimensions (W, D, H)	48.3cmx10.2cmx1U, 19" x 4" x 1U	48.3cmx10.2cmx1U 19" x 4" x 1U	48.3cm x 10.2cm x 1U 19" x 4" x 1U
Weight	1.6kg. (3.5lbs.) Approx.	1.6kg. (3.5lbs.) Approx.	1.6kg. (3.5 lbs.) Approx.

OMX-9053, 9054, 9055