OMX-9040

3x1 Video Switcher

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. The **OMX-9040 3x1 Video Switcher** offers an innovative solution to many of the problems arising from switching, editing and signal distribution.

The **OMX-9040 3x1 Video Switcher** is simple-to-operate , tiny sized, having three Composite videoinputs and one Composite video output.

The OMX-9040 can be used as:

- ⌦ Video production studios and video field work, delivering undiminished quality video switching.
- ⌦ Video showrooms, shops and CCTV applications.

In the **OMX-9040,** video signals are switched by means of digital control pulses during the Vertical Interval.

Operation

- Connect all inputs to the sources to be switched, taking care to use the right high quality cables.
- Connect the output to the acceptor, again use high quality cables.
- Connect a 12 VDC power supply (wall transformer, car battery, battery belt etc.) to the DC in socket on the rear panel of the machine. Check for proper polarity.
- Turn on all units - sources, acceptor and the **OMX-9040** machine by applying power to it.
- If there is no video signal connected to input #1, then the **OMX-9040** machine operates as an electronic switcher without Vertical Interval switching.

Application Hints

- ⌦ In emergency cases, the **OMX-9040** may be operated using a 9 Volt battery as power source which will last for several hours.
- ⌦ Use a Kramer **OMX-7019** to distribute the output of the **OMX-9040** up to five acceptors (the **OMX-7019** is also 12V DC fed.)
- ⌦ The Vertical Interval Switching capability of the **OMX-9040** allows to use the unit as an inexpensive backup for a big studio switcher.

Technical Specifications:

INPUTS:	3 composite video 1Vpp/75 Ω on BNC type connectors.
OUTPUT:	1 composite video, 1 Vpp/75 Ω on a BNC type connector.
VIDEO BANDWIDTH:	46 MHz. -3dB.
SWITCHING:	Vertical interval.
DIFF. GAIN:	0.58%.
DIFF. PHASE:	0.44 deg.
K-FACTOR:	<0.05%.
MAX. VIDEO OUTPUT:	1.5Vpp/75 Ω.
VIDEO S/N RATIO:	75 dB.
CROSSTALK:	-50dB.
POWER SOURCE:	12VDC 40mA.
DIMENSIONS:	11.7cm x 6cm x 3.2cm (4.6"x2.4"x1.3", W, D, H.).
WEIGHT:	0.3 Kg. (0.67 Lbs.) approx.
ACCESSORIES:	12VDC power supply.

Please note that if the output signal is disturbed or interrupted by very strong external electromagnetic interference it should return and stabilize when such interference ends. If not, turn the power switch off and on again to reset the machine.

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