

OMX-9018

s-Video/Audio 4x4 Matrix Switcher

A Word 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 mechanical type. Most matrices are of the active electronic type, with many crosspoints.

Vertical Interval Switching, frequently used in video, ensures that the transition from one video source to another (such as switching between two genlocked cameras) is smooth and without interference. The switching and changeover is done during the blanked vertical interval period, when the transition is hidden.

Genlocked means synchronized so that the color and phase information from each source is identical. Thus switching is done with no interference on the screen, no rolling, no color loss and no jumping on the screen. Since the Syncs come with the same timing, all the information is identical and the transition between one switch and the other is smooth.

Vertical Interval Switching is needed when recording or transmitting a video program involving several video sources, as in live broadcast, to ensure clean, undisturbed picture transitions.

Matrices and Switchers may sometimes be RS-232 or RS-485/422 controlled. Each of these options is a way of remotely controlling a video/audio device (Switcher, SEG etc.) using a PC with

a serial port, or another device that uses a similar communication protocol. Adding inputs or outputs will extend a Switcher's capability. Factors Affecting Quality of Results:

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

- ❑ Source and acceptor signal handling capability - different brands provide different performance levels and the final result is largely determined by the component providing the worst performance. Using a source with poor performance will always result in low quality duplicates.
- ❑ Connection cables - low quality cables are susceptible to interference, degrade signal quality due to poor matching and cause elevated noise levels. They should therefore be of the best possible quality.
- ❑ Sockets and connectors of the sources and acceptors - so often ignored, should be of highest quality, since "Zero Ohm" connection resistance must be the target. Sockets and connectors must match the required impedance (75 ohms in video). Cheap, low quality connectors tend to rust, thus causing breaks in the signal path.
- ❑ Amplifying circuitry - must have quality performance when the demanded end result is high linearity, low distortion and low noise operation.
- ❑ Distance between sources and acceptors - this plays a major role in the final result. For long distances (over 15 meters) between sources and acceptors, special measures should be taken in order to avoid cable losses. These include using higher quality cables and, perhaps, adding line amplifiers.
- ❑ Interference from neighboring electrical appliances - these could 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 from any mains power cables, electric motors, transmitters etc, even when the 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 that is difficult to manage, cumbersome and possibly dangerous.

The **OMX-9018** is a high quality 4x4 matrix switch for composite and/or s-Video and stereo audio signals. It is a true matrix, allowing the user to route any input to any or all outputs simultaneously.

The **OMX-9018** provides composite video and s-Video connectors allowing it to be used for either format. Mixing formats is possible but composite video sources would typically need to be routed to composite video outputs and, likewise, s-Video sources must be routed to s-Video outputs. It is very important to note that the **OMX-9018** does not perform any signal format conversion.

For intuitive user control, the front panel offers a dedicated rotary input select knob for each of the four outputs. The **OMX-9018** is easy to use, dependable, rugged, and fits in one vertical space of a standard 19" rack.

Uses:

- ❖ Video production studios, for routing various sources to the appropriate acceptors.

- ❖ Video showrooms, shops and points of sale for system demonstration and comparison.
- ❖ CCTV and security applications for monitoring several sources.

Operation:

- ☒ Connect all Video and Audio signals from the sources to the appropriate inputs of the **OMX-9018**.
- ☒ Connect all Video-Audio acceptors to the output sockets of the **OMX-9018**.
- ☒ Operate sources, acceptors and the **OMX-9018**.
- ☒ In order to re-route a connection, turn the control knobs into the appropriate position. The new connection status will show on the LED display.

The Composite video inputs and outputs are connected in parallel to the channel of the YC (Super-Video). Only one format may be used in the same time.

*The **OMX-9018** can serve as a distribution amplifier as well, by connecting for example input no. 1 to outputs A, B, C and D.*

Application hints:

Use an OCEAN MATRIX Distribution Amplifier to split the inputs or the outputs to more acceptors.

When needed, you may use the **OMX-9018** as a DA, by connecting a specific input to all outputs.

Use a video processor in front of the outputs to enhance and correct a low quality source.

Technical Specifications:

INPUTS: 4 Video, 1Vpp / 75 Ω Composite (BNC), 1Vpp/75 Ω (Y), 0.3Vpp / 75 Ω (C) on 4P connectors.
4 Audio stereo 1Vpp / 10k Ω on RCAs.

OUTPUTS: 4 Video, 1Vpp / 75 Ω Composite (BNC), 1Vpp/75 Ω (Y), 0.3Vpp / 75 Ω (C) on 4P connectors.
4 Audio stereo 1Vpp / 100 Ω on RCAs.

VIDEO BANDWIDTH: 37 MHz.
AUDIO BANDWIDTH: 22 kHz.
DIFF. PHASE: 0.53 Deg.
MAX. VIDEO OUTPUT: 2Vpp/75 Ω .
VIDEO S/N RATIO: 72 dB.
AUDIO S/N RATIO: > 78 dB.
AUDIO THD: < 0.1%.
VIDEO CROSSTALK: -65dB (SYNC), -42dB (C).
CONTROL: 4 rotary control knobs.
DIMENSIONS: 19 inch (W), 7 inch (D), 1U (H) rack mountable.
POWER SOURCE: 115VAC, 50/60 Hz 12 VA.
WEIGHT: 2.8 Kg. (6.2 Lbs.) Approx.
ACCESSORIES: Power cord.

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.

The socket-outlet shall be installed near the equipment and shall be easily accessible. To fully disconnect equipment, remove power cord from its socket.

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