MAV Series

A/V MATRIX SWITCHERS FOR
COMPOSITE VIDEO OR S-VIDEO, AND STEREO AUDIO

■ **17 models with I/O sizes from 4x4 to 8x8**

■ **150 MHz (-3 dB) video bandwidth, fully loaded**

■ **Switches composite video or S-video, and stereo audio**

■ **Video genlock and vertical interval switching**

■ **Quad standard video compatibility**

■ **Balanced and unbalanced audio compatibility**

■ **Audio input gain & attenuation**

■ **Audio breakaway**

■ **Global presets for storing commonly used switching configurations**

■ **QS-FPC™ - QuickSwitch Front Panel Controller**

■ **RS-232 serial control**

■ **Optional IR remote control**

■ **Windows®-based control program**

MAV 88 AV RCA

The Extron MAV Series matrix switchers provide versatile switching solutions for video system applications that route composite video or S-video signals, with stereo audio. The MAV Series is ideal for museums, university classrooms, sports bars and restaurants, videoconference and distance learning facilities, video production suites, corporate boardrooms and meeting facilities, and many residential entertainment installations.

Extron® Electronics

FEATURES

- **150 MHz (-3dB) video bandwidth, fully loaded** – Ensures switching and distribution of video signals without degradation. The MAV Series matrix switchers provide a minimum 150 MHz (-3 dB) of video bandwidth at full performance capability when one input drives all outputs.

- **Quad standard** – Capable of switching NTSC 3.58, NTSC 4.43, PAL, and SECAM video for worldwide compatibility.

- **Video genlock** – Allows for vertical interval switching and enables smooth, seamless transitions when switching between synchronous video sources.

- **QS-FPC - QuickSwitch Front Panel Controller** – Provides a discrete button for each input and output, allowing for simple, intuitive operation.

- **View I/O mode** – Easily view which inputs and outputs are actively connected.

- **Global presets** – Frequently-used I/O configurations may be saved and recalled, either from the front panel controller, IP Link, or serial control. This time-saving feature allows you to set up I/O configurations and store them in memory for future use.

- **Balanced and unbalanced stereo audio** – Accepts both balanced and unbalanced stereo audio signals on captive screw connectors.

- **Audio Input gain and attenuation** – Allows users to set the level of gain or attenuation for each audio input channel, eliminating noticeable differences when switching between sources.

- **Audio breakaway** – Provides the capability to break an audio signal away from its corresponding video signal, allowing the audio channels to be operated as a separate matrix switcher.

- **IR control** – MAV Series models can be controlled via the front panel or optional IR 501 remote control.

- **RS-232 control port** – Using RS-232 serial commands, the MAV Series can be controlled and configured via the Extron Windows®-based control program, or integrated into third-party control systems. Extron products use the SIS™ - Simple Instruction Set command protocol, a set of basic ASCII code commands that allow for quick and easy programming.

- **Control software** – Provides a graphical, drag-and-drop interface for I/O configuration and other customization functions via RS-232 or RS-422 remote control. This software also offers an emulation mode for configuration of an offsite matrix switcher; the I/O configuration may be saved for future downloading to the matrix switcher.

- **Optional remote control** – Optional X/Y control panels, bus control panels, and keypads provide the flexibility to control a MAV Series matrix switcher from a remote location.

- **Front panel security lockout** – Prevents unauthorized use when the matrix switcher is installed in an unsecured environment where easy access is not desirable. In lock-out mode, a special button combination is required to operate the front panel.

**MKP 2000**   **MKP 3000**

MCP 1000

- **Internal international power supply** – For worldwide compatibility, all models are equipped with an internal, autoswitching power supply that meets or exceeds all appropriate safety certifications.

ALSO AVAILABLE

MAV Plus Series Matrix Switchers
For larger system designs requiring more inputs & outputs, or require the routing of HDTV, and/or component video, the MAV Plus Series includes 88 models in I/O sizes from 8x8 to 64x64. The MAV Plus Series features backlit I/O selection buttons, audio output volume control, and Extron's exclusive IP Link® Ethernet monitoring and control technology. Visit the Extron website at www.extron.com for more information.
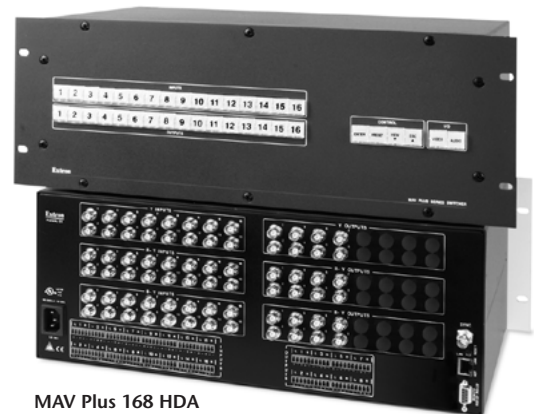
MAV Plus 168 HDA
HDTV/Component and Stereo
Audio Matrix Switcher

MAV 44 SVA
S-Video & Stereo Audio
Matrix Switcher

4x4 Video & Audio Matrix Switchers

Composite Video	Description	Part Number
MAV 44 AV	Video & Balanced/Unbalanced Stereo Audio	60-553-21
MAV 44 AV RCA	Video & Unbalanced Stereo Audio	60-553-31

S-Video	Description	Part Number
MAV 44 SVA	S-Video & Balanced/Unbalanced Stereo Audio	60-553-22
MAV 44 SVA RCA	S-Video & Unbalanced Stereo Audio	60-553-32

NOTE: AV versions support audio on captive screw connectors.
AV RCA versions support audio on RCA connectors.

MAV 48 AV RCA
Composite Video & Stereo Audio
Matrix Switcher

4x8 Video & Audio Matrix Switchers

Composite Video	Description	Part Number
MAV 48 AV	Video & Balanced/Unbalanced Stereo Audio	60-605-21
MAV 48 AV RCA	Video & Unbalanced Stereo Audio	60-605-31

S-Video	Description	Part Number
MAV 48 SVA	S-Video & Balanced/Unbalanced Stereo Audio	60-605-22
MAV 48 SVA RCA	S-Video & Unbalanced Stereo Audio	60-605-32

MAV 84 SVA RCA
S-Video & Stereo Audio
Matrix Switcher

8x4 Video & Audio Matrix Switchers

Composite Video	Description	Part Number
MAV 84 AV	Video & Balanced/Unbalanced Stereo Audio	60-554-21
MAV 84 AV RCA	Video & Unbalanced Stereo Audio	60-554-31

S-Video	Description	Part Number
MAV 84 SVA	S-Video & Balanced/Unbalanced Stereo Audio	60-554-22
MAV 84 SVA RCA	S-Video & Unbalanced Stereo Audio	60-554-32

MAV 88 AV
Composite Video & Stereo Audio
Matrix Switcher

8x8 Video & Audio Matrix Switchers

Composite Video	Description	Part Number
MAV 88 V	Composite Video only	60-555-01
MAV 88 AV	Video & Balanced/Unbalanced Stereo Audio	60-555-21
MAV 88 AV RCA	Video & Unbalanced Stereo Audio	60-555-31

S-Video	Description	Part Number
MAV 88 SVA	S-Video & Balanced/Unbalanced Stereo Audio	60-555-22
MAV 88 SVA RCA	S-Video & Unbalanced Stereo Audio	60-555-32

DESCRIPTION

The Extron **MAV Series** of A/V Matrix Switchers is designed to suit the requirements of many smaller video and audio switching systems. Available in fixed I/O sizes from 4x4 to 8x8 and housed in a compact 1U rack-mountable enclosures, the MAV Series is capable of routing several composite video or S-video, and stereo audio signals, to multiple outputs.

MAV Series matrix switchers are ideal solutions for a variety of video routing applications, including corporate boardrooms, command and control centers, museums, university classrooms, sports bars and other themed entertainment venues, videoconferencing rooms, and residential media installations.

Video Features
All MAV Series switchers feature 150 MHz (-3 dB) video bandwidth, fully loaded, ensuring signal quality in even the most complex system designs. In addition, all models are capable of switching NTSC 3.58, NTSC 4.43, PAL, and SECAM video sources for worldwide capability. MAV Series switchers also feature video genlock and vertical interval switching for smooth, seamless transitions when switching between synchronous video sources.

Audio Features
The MAV Series includes matrix switchers capable of switching balanced or unbalanced stereo audio signals, in both Audio Follow and Audio Breakaway modes. Audio input gain and attenuation can be adjusted at the front panel or through serial control, eliminating

noticeable differences in audio level when switching between inputs. Many models are also available with convenient RCA connectors, for switching unbalanced stereo audio.

Control Features
Each of the 17 available MAV Series models comes standard with RS-232 control capability, as well as Extron's exclusive QS-FPC ‑ QuickSwitch Front Panel Controller, which allows for simple, touch-of-a-button input and output selection directly from the front panel. A special "Front Panel Security Lockout" mode is available for use when a MAV Series matrix switcher must be installed in an unsecured environment. The MAV Series can also be controlled via the optional MKP 2000 and MKP 3000 X/Y remote control panels. MAV models are also capable of IR control with the optional IR 501 remote control.
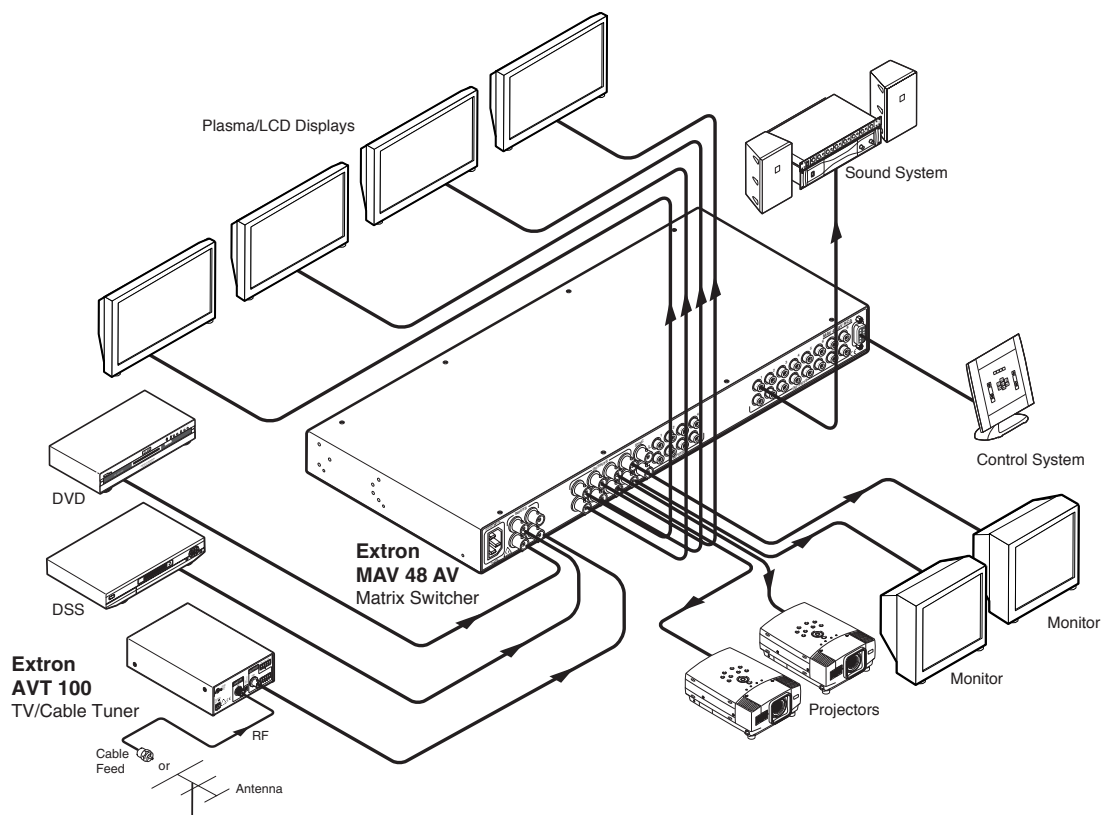
Software Features
All MAV Series matrix switchers are shipped with Extron's Windows®-based control software, which provides a simple, graphical interface for I/O configuration and other customization functions. The control software also includes an emulation mode for configuring an off-site matrix switcher. Once saved, the I/O configuration may be downloaded to the MAV Series switcher through the serial port. MAV Series models also support the download of the latest firmware revisions through the serial port, directly from Extron's website at www.extron.com.

IR 501 Remote

APPLICATION DIAGRAM

Plasma/LCD Displays

Sound System

DVD

DSS

Extron MAV 48 AV Matrix Switcher

Extron AVT 100 TV/Cable Tuner

RF

Cable Feed   or

Antenna

Control System

Monitor

Monitor

Projectors

SPECIFICATIONS

VIDEO — COMPOSITE VIDEO AND S-VIDEO MODELS

Gain .... Unity
Bandwidth .... 150 MHz (-3 dB), fully loaded
Differential phase error......................... <0.1° at 3.58 MHz and 4.43 MHz
Differential gain error .... <0.1% at 3.58 MHz and 4.43 MHz
Crosstalk .... <-50 dB @ 5 MHz
Switching speed.................................. 20 ms (max.)

VIDEO INPUT

Number/signal type
    MAV 44/48/84/88 video................ 4 or 8 composite video, depending
          on model
    MAV 44/48/84/88 S-video............. 4 or 8 S-video, depending on model
Connectors
    MAV 44/48/84/88 video................ 4 or 8 female BNC, depending on model
    MAV 44/48/84/88 S-video............. 4 or 8 female 4-pin mini-DIN, depending
          on model
Nominal level...................................... 1 Vp-p for Y of S-video, and for
          composite video
          0.3 Vp-p for C of S-video
Min./max. levels .... Analog: 0.4 V to 2.0 Vp-p no offset
          at unity gain
Impedance.. 75 ohms
Return loss .... Composite video: <-40 dB @ 0 to 10 MHz
          S-video: <-25 dB @ 0 to 10 MHz
DC offset (max. allowable).................. 5 V
External sync (genlock) .... 0.2 V to 0.4 Vp-p
Input coupling .... AC coupling only

VIDEO OUTPUT

Number/Signal type
    MAV 44/48/84/88 video................ 4 or 8 composite video, depending
          on model
    MAV 44/48/87/88 S-video............. 4 or 8 S-video, depending on model
Connectors
    MAV 44/48/84/88 video................ 4 or 8 female BNC, depending on model
    MAV 44/48/84/88 S-video............. 4 or 8 female 4-pin mini-DIN, depending
          on model
Nominal level...................................... 1 Vp-p for Y of S-video, and for
          composite video
          0.3 Vp-p for C of S-video
Min./max. levels .... 0.4 V to 2.0 Vp-p (follows input)
Impedance.. 75 ohms
Return loss .... S-video: <-25 dB @ 5 MHz
          Composite video: <-40 dB @ 5 MHz
DC offset.. 15 mV typical (per output enabled
          with 70 ohm termination) with input
          at 0 offset
Switching type.................................... Vertical interval

SYNC

Genlock connectors .... 2 BNC female
Standards... NTSC 3.58, NTSC 4.43, PAL, SECAM

AUDIO

Gain... Adjustable; the default is unity
Frequency response .... 20 Hz to 20 kHz, ±0.5 dB
THD + Noise .... 0.03% @ 1 kHz, 0.3% @ 20 kHz
          at nominal level
S/N .... >90 dB at max. output (unweighted)
Crosstalk .... <-65 dB @ 20 kHz, <-80 dB @ 1 kHz
          or below 60 Hz, fully loaded
Stereo channel separation .... >80 dB @ 20 Hz to 20 kHz
CMRR .... >75 dB @ 20 Hz to 20 kHz

AUDIO INPUT

Number/signal type
    MAV 44/48/84/88 RCA.................. 4 or 8 stereo, unbalanced
    MAV 44/48/84/88 Audio .... 4 or 8 stereo, balanced/unbalanced
Connectors
    MAV 44/48/84/88 RCA.................. 4 or 8 pairs of female RCA
    MAV 44/48/84/88 Audio .... (4 or 8) 3.5 mm captive screw
          connectors, 5 pole
Impedance.. >18k ohms unbalanced,
          24k ohms balanced, DC coupled
Nominal level...................................... Configurable: +4 dBu
          (1.23 V, professional level)
          or -10 dBV (316 mV, consumer level)
Max. level .... >+20 dBu (captive screw models)
          at 1% THD+N >+14 dBu
          (RCA models) at 1% THD+N
Input gain adjustment......................... −18 dB to +10 dB, adjustable per input;
          default = 0 dB.
NOTE: 0 dBu = 0.775 V(rms), 0 dBV = 1 V(rms), 0 dBV ≈ 2 dBu

AUDIO OUTPUT

Number/signal type
    MAV 44/48/84/88 RCA.................. 4 or 8 stereo, unbalanced
    MAV 44/48/84/88 Audio .... 4 or 8 stereo, balanced/unbalanced
Connectors
    MAV 44/48/84/88 RCA.................. 4 or 8 pairs of female RCA
    MAV 44/48/84/88 Audio .... (4 or 8) 3.5 mm captive screw
          connectors, 5 pole
Impedance.. 50 ohms unbalanced,
          100 ohms balanced
Gain error .... <±0.1 dB channel to channel
Nominal level...................................... Configurable: +4 dBu
          (1.23 V, professional level)
          or -10 dBV (316 mV, consumer level)
Max. level (Hi-Z) .... >+24 dBu, balanced; >+18 dBu,
          unbalanced at 1%THD+N
Max. level (600 ohm).......................... >+19 dBm, balanced; >+13 dBm,
          unbalanced at 1% THD+N

CONTROL/REMOTE — SWITCHER

Global Presets 16
Serial control port .... RS-232, 9-pin female D connector
Baud rate and protocol .... 9600, 8 data bits, 1 stop bit, no parity
Serial control pin configurations.......... 2 = TX, 3 = RX,
          5 = GND,
          9 = hardwired IR
IR controller module .... IR 501 remote control (optional)
Program control.................................. Extron's control/configuration program
          for Windows® Extron's Simple Instruction
          Set (SIS™)

GENERAL

Power .... 100 VAC to 240 VAC, 50/60 Hz,
          15 watts, internal, autoswitchable
Rack mount .... Yes, with included brackets,
          part #70-077-03
          Also furniture mountable with an
          optional under-desk mounting kit,
          part #70-222-01
Enclosure type .... Metal
Enclosure dimensions......................... 1.75" H x 17.4" W x 8.5" D
          (1U high, full rack wide)
          4.4 cm H x 44.2 cm W x 21.6 cm D
          (Depth excludes connectors.
          Width excludes rack ears.)
Product weight .... 7.0 lbs (3.2 kg)
Shipping weight .... 10 lbs (5 kg)
Listings .... UL, CUL
Compliances....................................... CE, FCC Class A, VCCI, AS/NZS, ICES
NOTE: All nominal levels are at ±10%.

Specifications are subject to change without notice.

# MAV FAMILY COMPARISON CHART

|	Features	MAV Series	MAV Plus Series
Video Features	Bandwidth - fully loaded	150 MHz (-3 dB)	150 MHz (-3 dB)
	Input/output size range	4x4 to 8x8	8x8 to 64x64
	Composite Video	✓	✓
	S-video - 4-pin DIN	✓	
	S-video - 2 BNCs		✓
	Component Video - Y, R-Y, B-Y		✓
	HDTV - Y, Pb, Pr		✓
	RGsB		✓
Audio Features	Stereo Audio only Matrix Switchers		✓
	Balanced/unbalanced stereo audio	✓	✓
	Audio input gain & attenuation	✓	✓
	Audio output volume control		✓
Control Features	QS-FPC - QuickSwitch front panel controller	✓	
	Enhanced QS-FPC with tri-color backlit I/O buttons		✓
	Global memory presets	✓	✓
	IR remote control - optional	✓	
	RS-232 serial control	✓	
	RS-232/422 serial control		✓
	IP Link Ethernet monitoring and control		✓

PANEL DRAWINGS
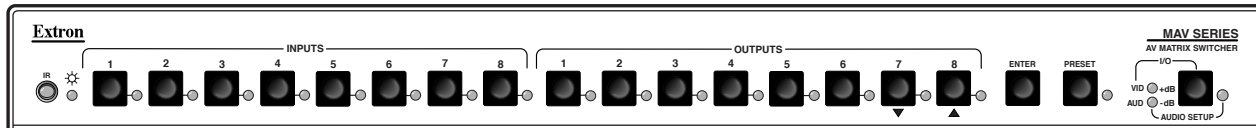
MAV 88 SVA RCA - Front
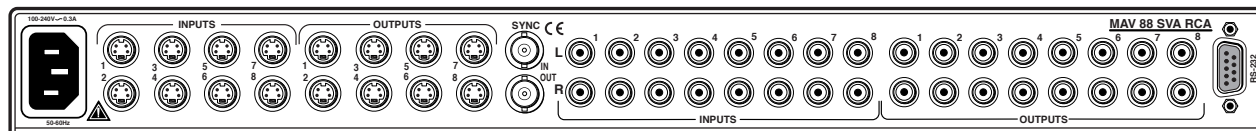
MAV 88 SVA RCA - Back
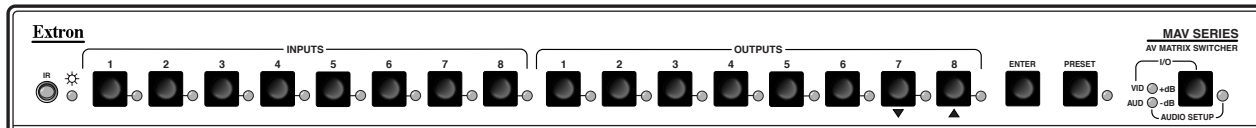
MAV 88 AV - Front
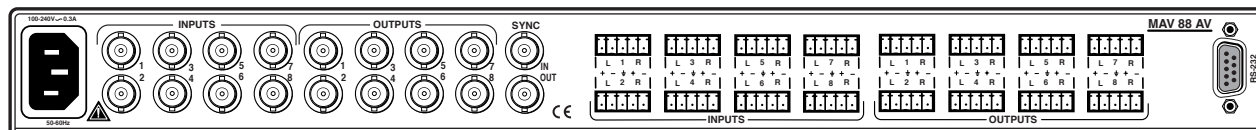
MAV 88 AV - Back

1230 South Lewis Street
Anaheim, CA 92805
800.633.9876 714.491.1500
FAX 714.491.1517

Extron Electronics, Europe
Beeldschermweg 6C, 3821 AH Amersfoort
The Netherlands
+800.3987.6673 +31.33.453.4040
FAX +31.33.453.4050

Extron Electronics, Asia
135 Joo Seng Rd. #04-01
PM Industrial Bldg.
Singapore 368363
+65.6383.4400 FAX +65.6383.4664

Extron Electronics, Japan
Kyodo Building, 16 Ichibancho
Chiyoda-ku, Tokyo 102-0082
Japan
+81.3.3511.7655 FAX +81.3.3511.7656

© 2007 Extron Electronics. All rights reserved. All trademarks mentioned are the property of their respective owners.

07-03
68-679-01
REV. D