A WORLD OF A/V SOLUTIONS

MATRICES

6 X 3 MATRIX SWITCHER

FOR COMPOSITE VIDEO / S-VIDEO AND STEREO AUDIO

MSC0603

OPERATION MANUAL

High Resolution Video Products • A/V System Integration Tools • Interactive Training Systems

Installation and Safety Instructions

For Models without a Power Switch:

The socket outlet shall be installed near the equipment and shall be accessible.

For all Models:

No serviceable parts inside the unit. Refer service to a qualified technician.

For Models with Internal or External Fuses:

For continued protection against fire hazard, replace only with same type and rating of fuse.

Instructions d'installation et de sécurité

Pour les modèles sans interrupteur de courant:

La prise de courant d'alimentation sera installé près de l'équipement et sera accessible.

Pour tout les modèles:

Pas de composants à entretenir à l'intérieur. Confiez toute réparation à un technicien qualifié.

Pour les modèles équipés de fusibles internes ou externes:

Afin d'éviter tout danger d'incendie, ne remplacer qu'avec le même type et la même valeur de fusible.

Installations- und Sicherheitshinweise

Für Geräte ohne Netzschalter:

Die Netzsteckdose soll in der Nähe des Gerätes installiert und frei zugänglich sein.

Für alle Geräte:

Keine Wartung innerhalb des Gerätes notwendig. Reparaturen nur durch einen Fachmann!

Für Geräte mit interner oder externer Sicherung:

Für dauernden Schutz gegen Feuergefahr darf die Sicherung nur gegen eine andere gleichen Typs und gleicher Nennleistung ausgewechselt werden.

Instalacion E Instrucciones de Seguridad

Modelos Sin Interruptor:

La conexión debe ser instalada cerca del equipo y debe ser accesible.

Para Todos Los Modelos:

Dentro de la unidad , no hay partes para reparar. Llame un tecnico calificado.

Modelos con Fusibles Internos o Externos:

Para prevenir un incendio, reemplace solo con el mismo tipo de fusible.

CE COMPLIANCE

All products exported to Europe by Inline, Inc. after January 1, 1997 have been tested and found to comply with EU Council Directive 89/336/EEC. These devices conform to the following standards:

EN50081-1 (1991), EN55022 (1987)
EN50082-1 (1992 and 1994), EN60950-92

Shielded interconnect cables must be employed with this equipment to ensure compliance with the pertinent Electromagnetic Interference (EMI) and Electromagnetic Compatibility (EMC) standards governing this device.

CE

FCC COMPLIANCE

This device has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide against harmful interference when equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at their own expense.

Table of Contents

Product Overview

Description

MSC0603 is a compact 6 x 3 composite video/S-Video and Stereo Audio Matrix switcher featuring composite video/S-Video stereo audio matrix switching, 100 MHz video bandwidth, and one switching mode. It is ideal for permanent installations, rentals, complex staging operations, and any other display system requiring a high performance, economical composite video/S-Video stereo audio matrix switcher.

MSC0603 Model	Inputs/Outputs	Video Matrix (1 BNC)	S-Video Matrix (2 BNCs)	Stereo Audio Matrix
MSC0603-1	6 x 3			
MSC0603-2	6 x 3			
MSC0603-3	6 x 3			
MSC0603-4	6 x 3			

Product Features

- **Video Performance** — Provides 100 MHz video bandwidth
- **Integrated Labeling** — Matrix faceplates include attachment posts to hold optional nameplates that the user can engrave to identify inputs, outputs, or preset functions
- **IR Remote Control Capability** — Enables user to select inputs/outputs and adjust volume using optional CTL 120 IR Remote Control
- **Robust RS-232/RS-422/RS-485 Serial Control Capability** — Provides connection to a third party control system
- **New Serial Control Protocol** — Offers fast, easy programming and powerful control options, such as individual unit addresses
- **Audio Inputs** — Compatible with balanced or unbalanced stereo audio signals
- **Audio Outputs** — Can be wired to output balanced or unbalanced stereo audio
- **Individual Audio Input Trim Levels** — Units can store a unique input level for each input
- **Master Volume Control and Mute — For Each Output**
- **32 Configuration Memories** — Store and recall input/output configurations and audio levels
- **Genlock Input** — Matrix offers vertical interval switching for glitch-free transitions when used with synchronous video sources

Compatibility

Video Inputs

The **MSC0603** matrix switcher provides six female BNC inputs and accepts composite video and S-Video signals on all six inputs.

Genlock Input/Output

The **MSC0603** provides one BNC input and one BNC output for genlock to allow switching to occur during the vertical interval.

Audio Inputs

Analog Audio Signals

Inputs 1-6 include 5-pin captive screw terminals for analog audio input. All eight analog stereo audio inputs are compatible with unbalanced and balanced line level signals from a VCR, DVD player, computer audio card, or any other audio device that delivers a stereo line level signal.

Video Outputs

The **MSC0603** provides three BNC outputs.

Audio Outputs

Analog Audio Signals

The analog stereo audio output provides a balanced or unbalanced line level output signal (see page 4 for output wiring diagram). This output can drive any line level compatible audio unit, or a local device such as powered speakers. The output level is adjustable using the volume control.

Installation

Below are instructions for installing the **MSC0603** Matrix Switcher. An application diagram showing typical connections is on page 5.

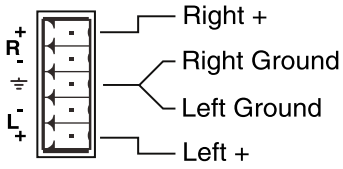
> **Note:** Prior to initiating the installation procedure, ensure that there is no power supply cord connected to the unit.

1. Place/install the **MSC0603** at the desired location. Seat the unit on a flat surface or securely install it in a standard 19" equipment rack using the MTR102 rack ears (provided). The **MSC0603** is exactly 1U high without the feet. If other equipment will be located in the space directly below the matrix switcher, you must remove the rubber feet on the bottom of the unit before mounting it in the equipment rack.

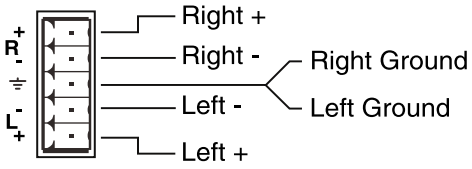
2. Connect the output display devices (monitors, data projectors, etc.) to the matrix switcher BNC connector outputs. The **MSC0603** features three BNC composite video outputs and three S-Video BNC S-Video outputs for easy connections to display devices. You can connect display devices with a BNC input directly to the **MSC0603** BNC output ports using standard BNC cables. INLINE's **IN8000 Series** flexible BNC cables offer exceptional performance and are available in a variety of lengths.

3. Connect the **MSC0603** analog stereo audio output (5-pin captive screw terminal) to the audio system's line level input (mixer, amplifier, powered speakers, etc.). The output can be set for balanced or unbalanced output signal as required by wiring the output appropriately (see wiring diagram below). The analog audio output connector will accept stranded or solid cables from 20 - 26 AWG.

For Unbalanced Stereo Audio Output:



For Balanced Stereo Audio Output:



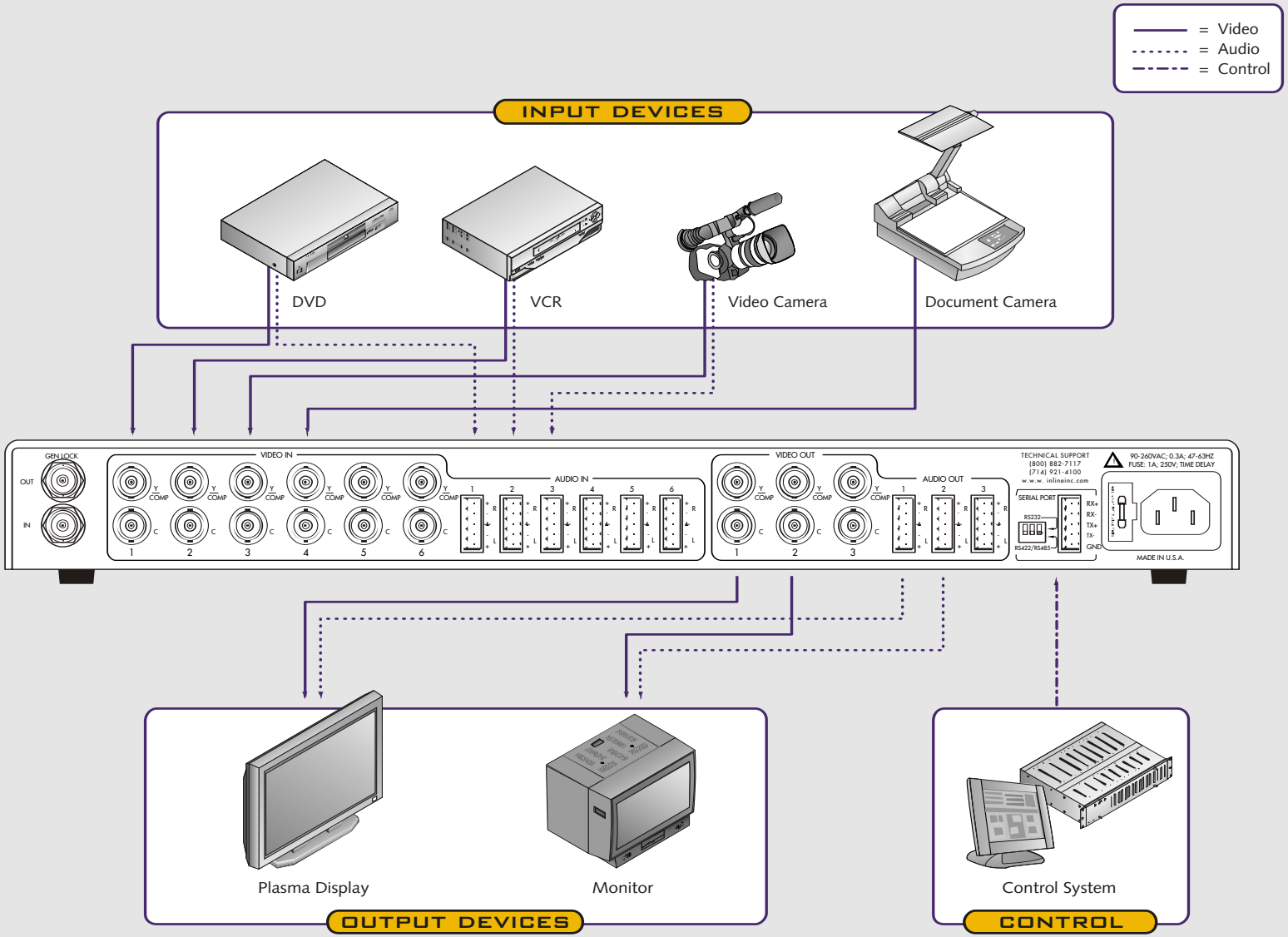
4. Connect the input video sources to the matrix switcher's BNC connector inputs.

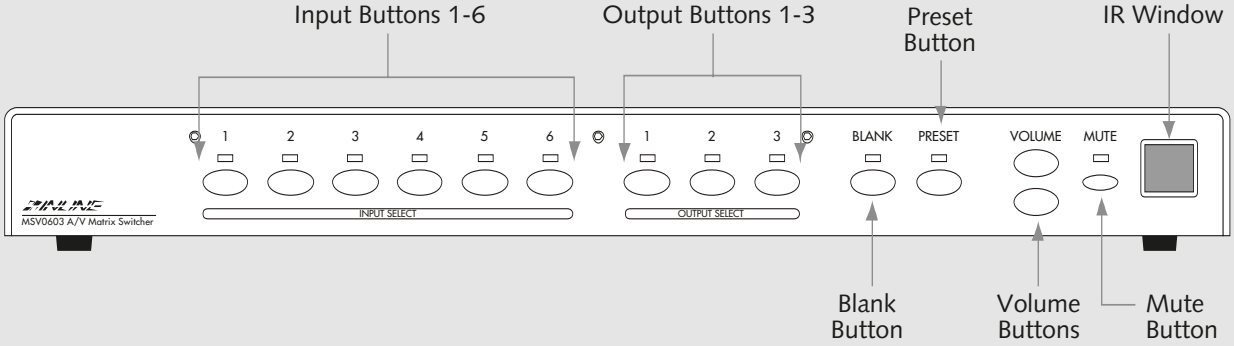
5. Connect the audio sources to the audio inputs. All five inputs accept balanced or unbalanced stereo audio signals. Connect the audio signals to the 5-pin captive screw connectors.

6. If desired, connect a control system, computer, or other serial command source to the RS-232 remote connector. Cable the control system or computer serial port to the serial port based on the type of connection described on page 9.

7. Connect power to the Matrix switcher, display devices, and serial and audio equipment as applicable. To connect power to the switcher, attach the power cord to the connector on the rear of the set. A standard IEC power cord comes with the unit. Plug it into a 100 – 40 VAC, 50Hz or 60Hz power source.

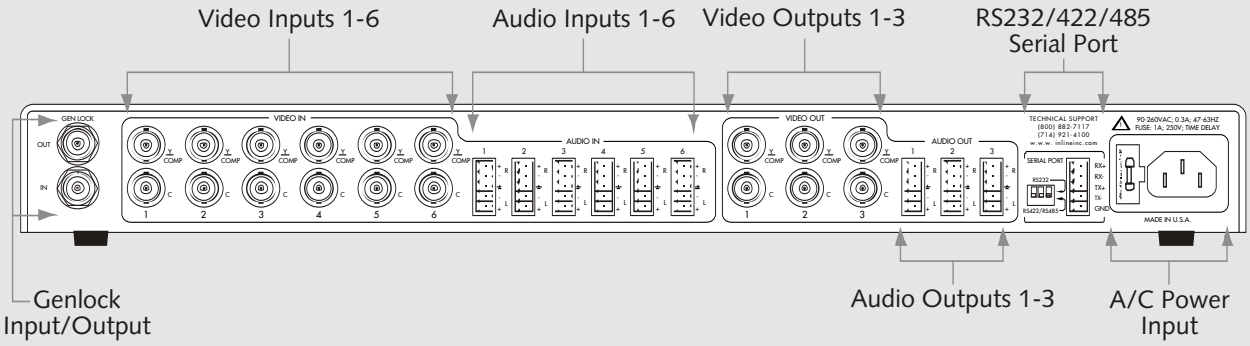
MSC0603 **COMPOSITE/S-VIDEO MATRIX SWITCHER** APPLICATION DIAGRAM





Front View

Rear View



Operation

Front Panel Controls

Input Select 1 - 6: Selects the designated input

Output Select 1 - 3: Selects the designated output

Preset: Stores or recalls a preset configuration, which includes all input/output patches and volume levels

Blank: Blanks the currently selected output

Mute: Silences audio for the selected output

Volume: Increases or decreases volume level of the selected audio output

IR Window: Receives IR commands from optional CTL 120 IR remote control

Switching - Connecting Inputs & Outputs (Front Panel)

To make a connection between an input and an output:

1. Select the output.

2. Assign it an input.

3. Press the button of the output you want to change.
   Result: The LED above the output button glows (only one output can be selected at a time). The LED of the input currently sent to that output also glows.

To select a different input:

Press the desired input button.

To blank the output:

Press the **Blank** button.

Once you select an output, you can change the input as many times as desired.

To configure a new input/output patch:

1. Press the desired output select button.

2. Press the input select button you want to connect to the output.

Example: To patch input 4 to output 2, press the **Output 2** button followed by the **Input 4** button.

To store a preset:

1. Configure all necessary input/output patches.

2. Adjust audio volume levels.

3. Press and hold the **Preset** button for 5 seconds.

4. Press the input or output button you want to use to designate as the preset number for that configuration.

To recall a stored preset:

Press the **Preset** button, followed by an input or output button.

Switching and defining multiple groups is only feasible if you control the unit via RS-232.

Audio

The **MSC0603** routes stereo audio along with the video. The audio for the selected input routes to the selected output.

The **MSC0603** has **Volume Up** and **Down** buttons as well as a **Mute** button. These buttons function as follows:

Volume Up/Down - The **Volume Up** button increases the output volume; the **Volume Down** button decreases it. The volume is increased/decreased for the currently selected output. The output button's LED flashes to indicate a change. The LED stops flashing upon reaching the maximum or minimum level.

To adjust output audio volume level:

Press the **Volume** buttons on the front panel to raise or lower the volume of an output.

Adjusting input audio volume level

Adjusting the volume allows users to equalize the audio levels of the various inputs. This is important so the volume level does not increase/decrease dramatically when switching between inputs.

1. Press and hold the **Mute** button.

2. While still pressing the **Mute** button, press the **Input** button that corresponds to the input device for which you want to adjust the volume.

3. Press the **Volume** buttons to raise or lower the volume of the input device.

The **Mute** Button silences the audio signal. When the audio is muted (no audio) the LED glows. The audio remains muted until you press the button again.

To mute and/or restore audio output:

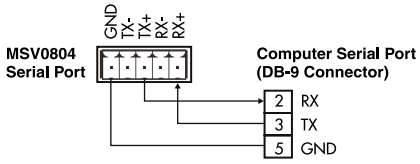
Press the **Mute** button to alternately silence/restore audio output.

Serial Ports

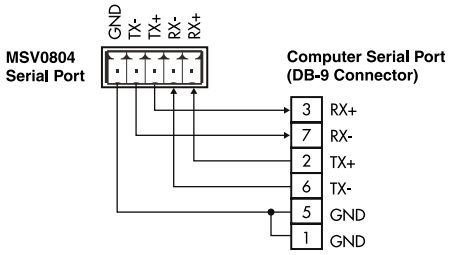
The **MSC0603** utilizes a 5-pin captive screw terminal block. The pin configurations are as follows:

RS-232/RS-422/RS-485 Connections

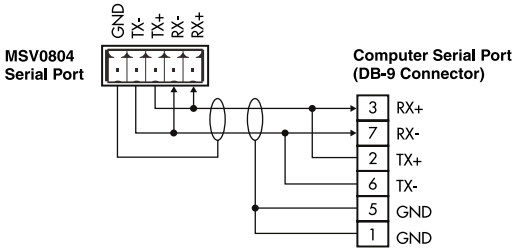
RS-232 Connection Diagram:



Full Duplex RS-422/485 Connection Diagram:



Half Duplex RS-485 Connection Diagram:



Dipswitch settings

Dipswitch settings change according to the standard used. Higher standards require a different signal type. Dipswitches make subtle adjustments to that signal type. Configure the dipswitch settings according to the following table.

Serial Format	Dipswitch Settings
RS-232*	123 OFF
RS-422/RS-485	123 ON

*Factory default

Creating Presets

Once you create a switch or patch through the *Output-Input* method, you can assign it a **Preset** number. This is a valuable, timesaving feature and allows unskilled operators the ability to duplicate complex patches without having to actually configure the patch.

To create a preset:

1. Create the desired configuration of input/output connections.
2. Press the **Preset** button.
3. Press any one of the **Input** or **Output** select buttons to pick a storage location for this preset.
4. Be sure to label or notate each **Preset** you make.
5. To recall a preset, press the **Preset** button, followed by the input/output button where the preset was stored.

Key Concept

When you turn the **MSC0603** on, it uses setup #1 as the default, and this cannot change. If you plan on turning off the **MSC0603**, make certain to store the initial settings in setup #1.

Power-on Settings

To power the **MSC0603** up, simply plug the unit it the outlet. There is no power on/off switch.

Reset to Factory Default

Soft Reset - To restore I/O configurations, volume levels, and the serial set up to the default factory setting, press the 1 and 5 input buttons.

Hard Reset - To restore all parameters, including presets, to the default factory setting, use the **[DFLT*x*]** command.

Remote Operation

RS-232 Control

The **MSC0603** RS-232/RS-422/RS-485 serial control port accepts serial commands from a control system, computer serial port, or any other device capable of sending out serial ASCII commands at compatible baud rates. A complete listing of RS-232/RS-422/RS-485 codes is included below.

Communication Protocol:

- 8 data bits
- 1 stop bit
- No parity check
- 9600 baud (factory default setting)

Protocol Structure

All commands sent to the unit must contain a leading character, the actual command, and an ending character. The **MSC0603** can accept multiple commands, storing them in a buffer. It immediately executes each command in the order it was issued.

The **MSC0603** recognizes [and] as leading and ending characters, also called Command Codes. The factory default for the Command Code is [ ]. The Command code can be changed via RS-232. Some sample command codes follow. For example:

This part of the command string...	**Represents:**
[	The leading character
ADDR*xx*	The actual command.
]	The ending character
This command string...	**Means:**
[ADDR*xx*]	Assign an address to the unit, 01 to 98, where ***xx*** = 01-98.

Using the CTL120-2 Remote Control

CTL120-2 IR Remote Control sends infrared commands to the CTL101. The CTL101 will convert these IR signals to serial commands so you can control functions on the **MSC0603** matrix switcher. A diagram outlining the location of each button is on page 18.

To use the CTL120-2 remote, press the **MATRIX** button. The remote is now in matrix switcher mode.

To configure a new input/output patch using the CTL120-2 remote control:

1. Press the remote control button that corresponds to the desired output select button.

2. Press the remote control button that corresponds to the desired input select button you want to connect to the output.

   Note: The **Blank** button on the remote control does ***not*** work to blank the currently selected output.

Serial Commands

Addressing Commands

If the switcher is being used in RS-232 mode (no other devices connected in parallel) there is no need to assign an address for this unit. If you are using multiple Inline products connected in parallel to a single serial port using RS-422 or RS-485 communications, you will need to assign an address for each unit.

The factory default for the unit is no address. The address for the unit must be between 01 and 98. Address 00 is a broadcast address and all units on the buss will perform the action commanded; however, they will not issue any responses.

To open communications to an addressed device, you must send a **[CCxx]** command. All other devices on the buss will ignore commands until addressed.

COMMAND	DESCRIPTION
[ADDR*xx*]	Assigns an address to the unit, 01 to 98. Address 99 is reserved for future products. • Where ***xx*** = 01 - 98
[ADDR@]	Removes an address from the unit. This is the factory default, and is the typical way to use the switcher when in the RS-232 mode
[ADDR?]	Query unit for a pre-assigned address.
[CC*xx*]	Connects controller to the addressed unit. 00 is a broadcast address thus all connected devices will perform commands. This command is to be used in conjunction with the [ADDR*xx*] command string. • Where o ***xx*** = 01 - 98 o **Note:** This command string is case sensitive.

Set-up Commands

These commands are for configuring the switcher, and you only need to send them once. If using a third party control system, you should place most commands in this section in the start-up section of the program.

COMMAND	DESCRIPTION
[ARC]	Request for model and version information.
[CP*x*@]	Re-sets the communications port to default of 9600, 8, N and 1. • Where ***x*** = 1
[CP*x*?]	Query communications port for current settings. • Where ***x*** = 1
[CP*xbpsfd*]	Configures the communications port for baud rate, parity, stop bits, flow control and duplex. • Where o ***x*** = 1 o ***b*** = 0 for 1200, 1 for 2400, 2 for 4800, 3 for 9600, 4 for 19200, 5 for 38400 o ***p*** = 0 for no parity, 1 for odd parity, 2 for even parity o ***s*** = 0 for 1 stop bit, 1 for 2 stop bits o ***f*** = 0 to disable flow control, 1 to enable flow control o **d** = *0 for full duplex and 1 for half duplex*
[DFLT*x*]	Performs a factory reset. The partial reset will default I/O configurations, volume levels and serial set-up but does not reset presets. A full reset will reset all parameters including presets. • Where ***x*** = 0 for partial reset, 1 for full reset
[FP*x*]	Enable/disable front panel control and request current status. • Where o ***x*** = 0 to disable, 1 to enable o ***x*** = ? to request current state o ***x*** = (left blank) to toggle current state
[RES*x*]	Enable/disable serial responses from switcher. • Where ***x*** = 0 to disable, 1 to enable
[VIS*x*]	Enable/Disable Vertical Interval Switching. Requires sources to be Genlocked. Contact Inline Inc. For specific application support. • Where ***x*** = 0 to disable, 1 to enable, ? to query

Level Commands

There are three predefined switching levels. Levels consist of combinations of Video (RGB), Sync (HV) and Audio boards (A). For commands that use level designators see **Switching Commands** below.

Default levels include:

- Level 1 - RGBHVA
- Level 2 - RGBHV
- Level 3 - Audio only

Switching Commands

These commands can only initiate a one-input-to-one-output switch.

COMMAND	DESCRIPTION
[MS*x*O*oo*I*ii*]	Executes a matrix switch of an input to an output for a specific level. • Where o ***x*** = 1 - 3 for specific level o ***oo*** = 01 - 03 for output o ***ii*** = 00 - 06 for input (00 = blank)
[MS*x*?]	Returns the current connections for Level x
[BLANK*oo*]	Blanks a specific output. • Where ***oo*** = 01 - 03 for output

Volume Commands

Use these commands to control volume levels for both inputs and outputs. Typically, adjust input volume levels to minimize drastic changes in volume when performing switches.

COMMAND	DESCRIPTION
[MUTE*oox*]	Used to mute/un-mute a specific output and request current status. • Where o ***oo*** = 01 - 03 for output o ***x*** = 0 to disable mute, 1 to enable mute o ***x*** = ? to request current state o ***x*** = (left blank) to toggle current state
[MUTE]	Toggle mute/un-mute all outputs.
[VOL*oox*]	Sets volume level for a specific output. • Where o ***oo*** = 01 - 03 for output o ***x*** = + (plus sign) to increment output volume o ***x*** = - (minus sign) to decrement output volume o ***x*** = @ to return output volume to factory default o ***x*** = ? to request current volume level
[VOL*ooxxx*]	Sets volume level for a specific output. • Where o ***oo*** = 01 - 03 for output o ***xxx*** = -550 - 090 o **Note:** 090 equals max (9 db gain), 000 equals factory default (unity gain), -550 equals minimum (-55db)
[VOLL*oox*]	Sets left channel volume level for a specific output. • Where o ***oo*** = 01 - 03 for output o ***x*** = + (plus sign) to increment output volume o ***x*** = - (minus sign) to decrement output volume o ***x*** = @ to return output volume to factory default o ***x*** =? to request current volume level

COMMAND	DESCRIPTION
[VOLL*ooxxx*]	Sets left channel volume level for a specific output. • Where o ***oo*** = 01 - 03 for output o ***xxx*** = -550 - 090 o **Note:** 090 equals max (9 db gain), 000 equals factory default (unity gain), -550 equals minimum (-55db)
[VOLR*oox*]	Sets right channel volume level for a specific output. • Where o ***oo*** = 01 - 03 for output o ***x*** = + (plus sign) to increment output volume o ***x*** = - (minus sign)to decrement output volume o ***x*** = @ to return output volume to factory default o ***x*** = ? to request current volume level
[VOLR*ooxxx*]	Sets right channel volume level for a specific output. • Where o ***oo*** = 01 - 03 for output o ***xxx*** = -550 - 090 o **Note:** 090 equals max (9 db gain), 000 equals factory default (unity gain), -550 equals minimum (-55db)
[VOL*x*]	Sets volume level for all outputs. • Where o ***x*** = + (plus sign) to increment output volume o ***x*** = - (minus sign) to decrement output volume o ***x*** = @ to return output volume to factory default o ***x*** = ? to request current volume level
[VOLRMP*oox*]	Starts volume ramp of a specific output. • Where o ***oo*** = 01 - 03 for output o ***x*** = + (plus sign) for volume ramp up o ***x*** = - (minus sign) for volume ramp down
[VOLSTOP]	Stop volume ramp function.
[VINii*x*]	Sets input volume level for a specific input. • Where o ***ii*** = 01 - 06 for input o ***x*** = + (plus sign) to increment input volume o ***x*** = - (minus sign) to decrement input volume o ***x*** = @ to return input volume to factory default o ***x*** = ? to request current volume level
[VIN*iixxx*]	Sets input volume level for a specific input. • Where o ***oo*** = 01 - 06 for input o ***xxx*** = -640 - 000 o **Note:** 000 equals max (factory default), -640 equals minimum

COMMAND	DESCRIPTION
[VIN*x*]	Sets input volume level for all inputs. • Where o ***x*** = + (plus sign) to increment input volume o ***x*** = - (minus sign) to decrement input volume o ***x*** = @ to return input volume to factory default o ***x*** = ? to request current volume level

Preset Commands

The **MSC0603** and **MSV0804** have the ability to store and recall common configurations. Both units offer **32 presets** available via serial control. The **MSC0603** has **7 presets** available via the front panel while the **MSX0804** has **12 presets** available via the front panel.

COMMAND	DESCRIPTION
[PSV*xxx*]	Save current configuration to preset memory. • Where ***xx*** = 01 - 32
[PRC*xxx*]	Recall stores configuration from preset memory. • Where ***xx*** = 01 - 32

MSV0502 / MSV0804 / MSC0603 Matrix Switchers

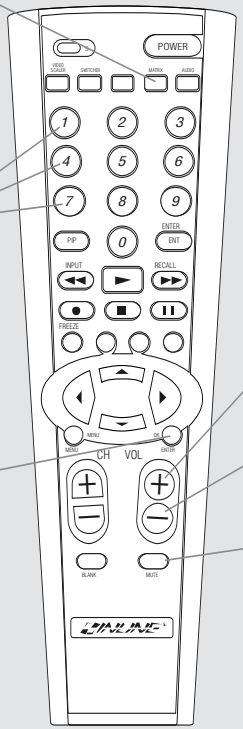
MATRIX

1st BUTTON TO PRESS

Matrix Button
Press this button first to set the **CTL120** to control MSV0502 / MSV0804 matrix switchers

Numeric Buttons
Select desired output, followed by the desired input

Enter Button
Press to make a menu selection or to execute a new setting when using on-screen menus



Vol + Button
Increases audio level

Vol – Button
Decreases audio level

Mute Button
Mutes audio signals

Controls all outputs simultaneously

CTL120-2 COMMAND EXAMPLES FOR MSV0502/MSV0804/MSC0603 MATRIX SWITCHERS

IMPORTANT: You must press the **MATRIX** button (MATRIX) once to set the **CTL120** remote to control MSV0502/MSV0804/MSC0603 matrix switchers.

COMMAND EXAMPLES

FUNCTION: Configure an input/output patch.
STEPS: Press the numeric button that corresponds to the desired output select button.
Press the numeric button that corresponds to the desired input select button.

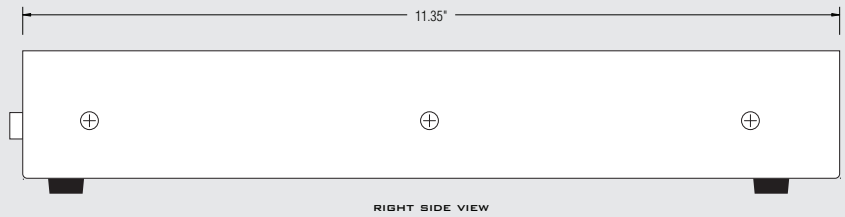
FUNCTION: Increase the audio level.
STEPS: Press the **VOL +** button once to increase the volume slightly.
Press and hold **VOL +** to continuously increase the volume.

FUNCTION: Mute the audio signal.
STEPS: Press the **MUTE** button to engage mute.
Press **MUTE** again to return to previous volume.

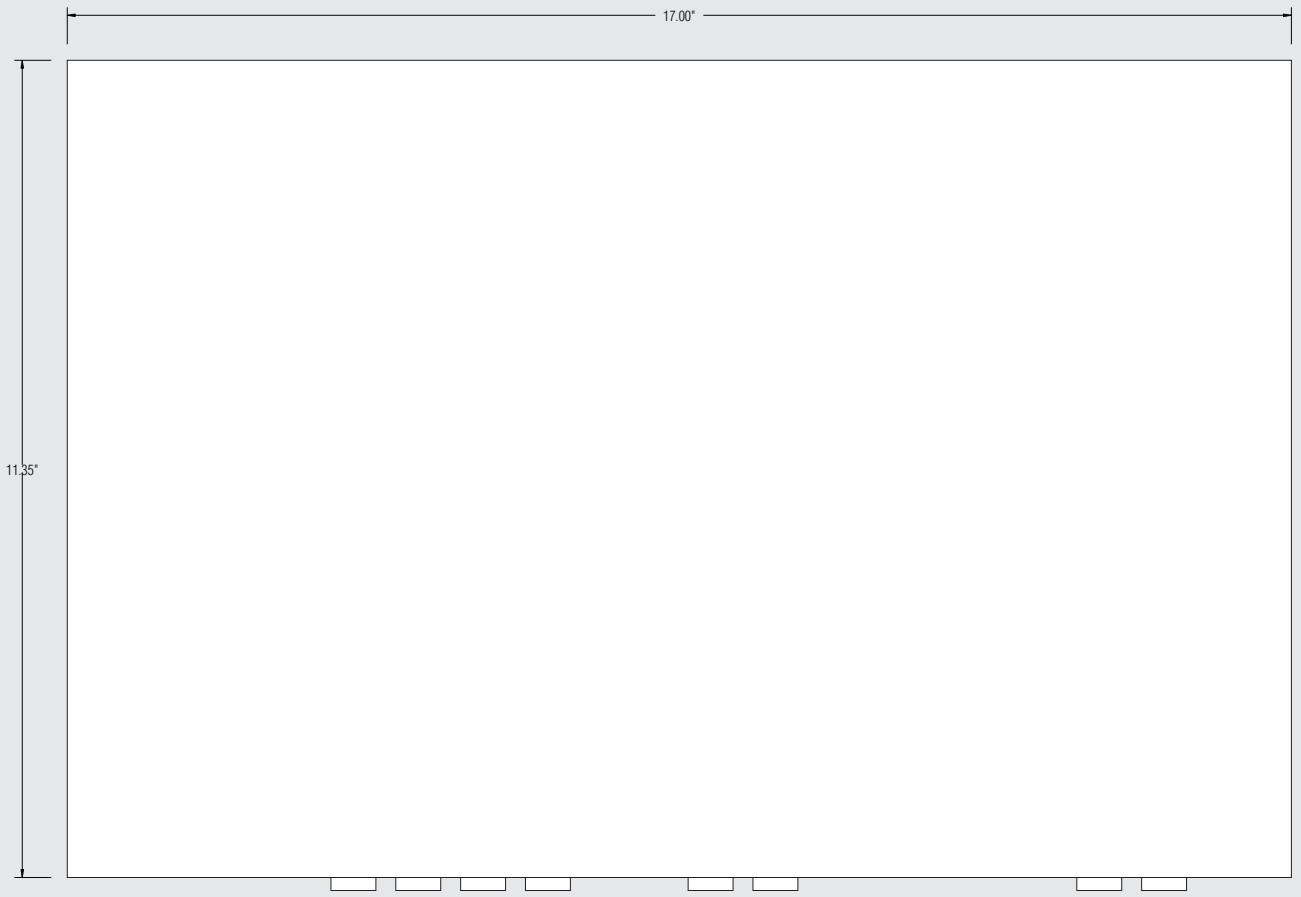
Specifications

MSC0603 Specifications	
Video	
Gain	Unity (1.0 V/V)
Bandwidth	100 MHz @ -3dB with .7V p-p input signal, fully loaded 0 - 10 MHz: < +0.1 dB to -0.1 dB 0 - 30 MHz: < +0.3 dB to -0.3 dB
Crosstalk	1 MHz: -67.2dB (worst) to -74.3dB (best) 10 MHz: -51.2dB (worst) to -70.2dB (best)
Video Input	
Number/Connectors	MSC0603-1/-2: (6) BNC Female for Composite Video MSC0603-3/-4: (6) Pairs of BNC Female for Composite Video or S-Video
Nominal Input Level	Composite Video: 1.0V S-Video - Chroma: 0.3V S-Video - Luma: 1.0V
Maximum Input Level	1.8 Vp (including any DC Offset)
Impedance	75 Ω
Input Return Loss	-46.0 dB @ 5 MHz
Video Output	
Number/Connectors/Signal Type	MSC0603-1/-2: (3) BNC Female for Composite Video MSC0603-3/-4: (3) Pairs of BNC Female for Composite Video or S-Video
Impedance	75 Ω
Output Return Loss	-46.0 dB @ 5 MHz
Genlock	
Input Connector	(1) BNC female for External Sync (Genlock)
Signal Level	0.3 - 0.4V p-p
Output Connector	(1) BNC female for Genlock loop out

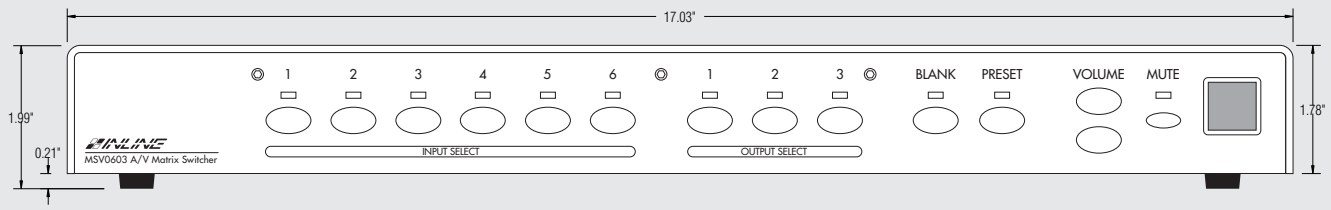
MSC0603 Specifications, continued	
Audio	
Frequency Response	10 Hz to 175 KHz - 3dB 20 Hz to 20 KHz ± 0.05dB
THD+Noise	0.0038% (1.0Vp-p @ 1 KHz)
S/N Ratio	87.0 dB
Output Gain Adjustment	+9.5 dB to -54.5 dB
Crosstalk	-95 dB (1.0Vp-p @ 1 KHz)
Stereo Separation	-95 dB (1.0Vp-p @ 1 KHz)
Audio Input	
Number/Connectors/Signal Type	(6) 5-Pin Captive Screw Terminal for Balanced/Unbalanced Stereo Audio
Impedance	20 Ω
Maximum Input Level:	+16 dBU
Input Gain Adjustment	0dB to - 55dB
Audio Output	
Number/Connectors/Signal Type	(3) 5-Pin Captive Screw Terminal for Balanced/Unbalanced Stereo Audio
Impedance	50 Ω Unbalanced/100 Ω Balanced
Maximum Output Level	+22dBU (High Z)/+16dBm (600 Ω)
Gain Error	± 0.1dB (channel to channel)
Control	
Connector	5-Pin Captive Screw Terminal
Serial Protocol	RS-232/RS-422/RS-485
Baud Rate	1,200 to 38,400 bps
General	
Power Supply	90-260VAC; 47-63 Hz
Shipping Weight	9.6 lbs./4.4 kg
Product Weight	5.9 lbs./2.7 kg
Dimensions	1.78" x 17" x 11.35"/4.5cm x 43.2cm x 28.8cm
MTBF	35,000 Hours
Storage Temperature/Humidity	-40° to 158° (-40° to 70° C)/10% to 90% non-condensing
Ambient Operating Temperature/Humidity	32° to 113° (0° to 45° C)/10% to 90% non-condensing
Regulatory Approvals	UL1950 CAN/CSA-22.2 No.950 Third Edition CE: EN55022 (1987) EN50081-1 (1991) EN50082-1 (1992 and 1994) EN60950-92
Included Accessories	
IN9123B	Rack Mounting Ears
IN9339	Inline Adjustment Tool
ICS100	Inline Control Software



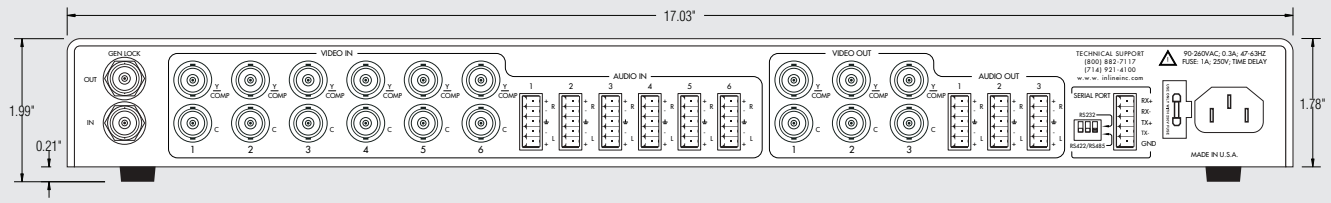
RIGHT SIDE VIEW



TOP VIEW



FRONT VIEW



BACK VIEW

Warranty

- INLINE warrants the equipment it manufactures to be free from defects in materials and workmanship.

- If equipment fails because of such defects and INLINE is notified within three (3) years from the date of shipment, INLINE will, at its option, repair or replace the equipment at its plant, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications.

- Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of re-shipment to the Buyer.

- This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.

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