



EN

Full Manual

**4K HD-TVI, AHD, HDCVI, CVBS,
to HDMI, VGA, CVBS, indoor**

MAM-5MM2203M0A

Introduction

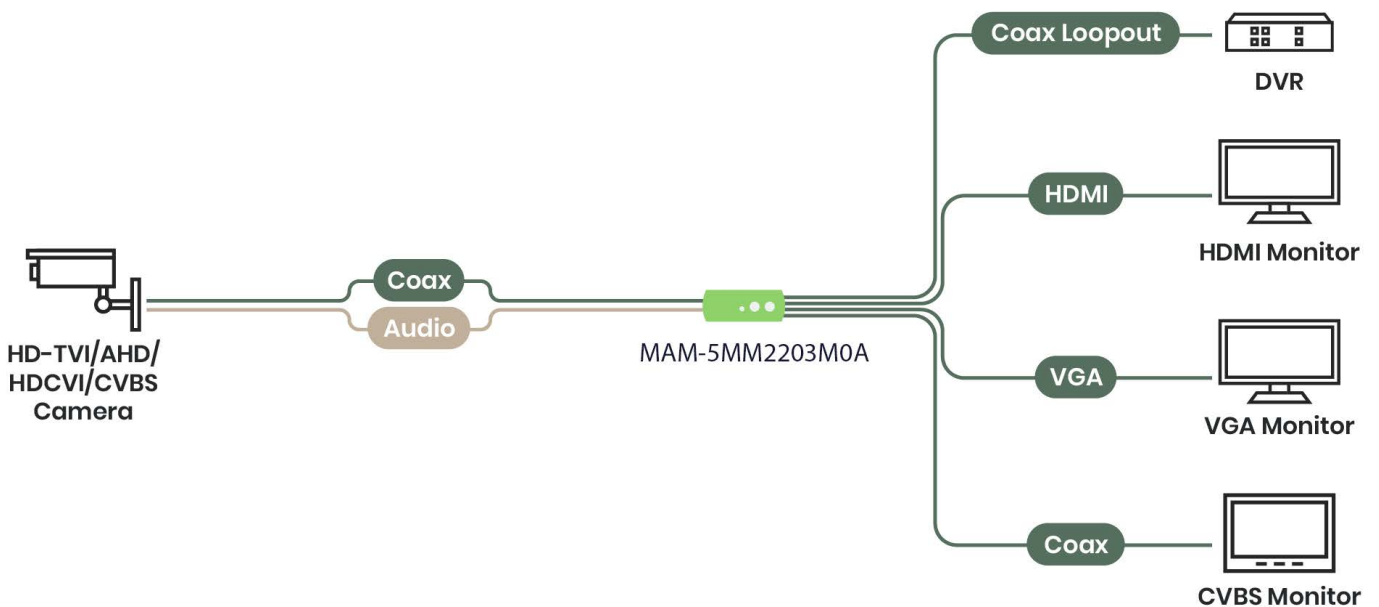
MAM-5MM2203M0A is a CCTV HD converter that supports up to 8MP video input for HD-TVI/ AHD/ HDCVI/ CVBS; it allows surveillance video to be shown on 4K HDMI, VGA, and CVBS displays at the same time. If don't have a 4K TV, you can watch surveillance videos on an existing display. In addition, the converter has a 3.5mm audio input to play the camera sound on an HDMI TV. It's very suitable for grocery stores, train stations, metro stations and public parking garages.

Features

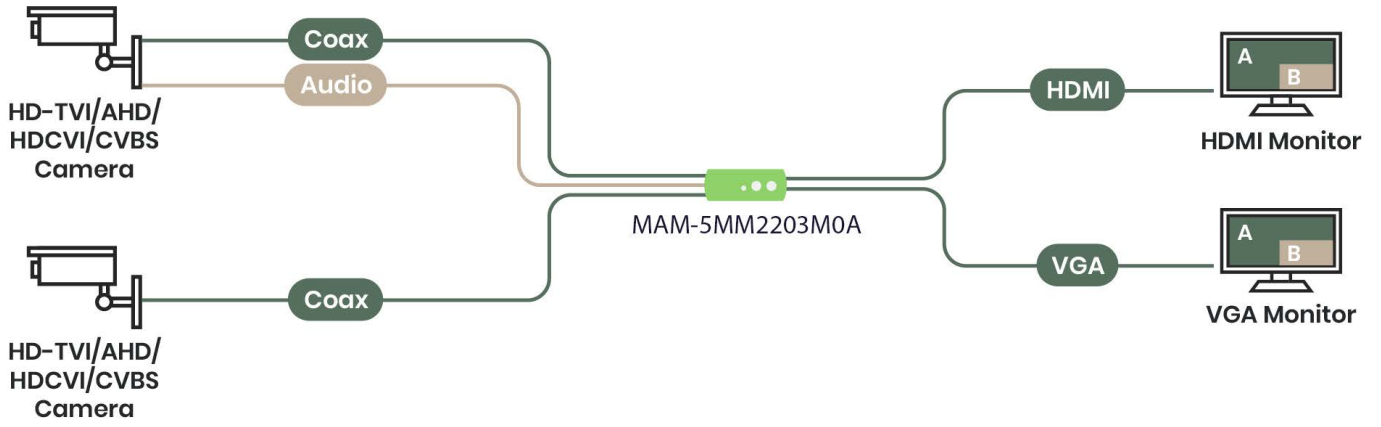
- Video input resolution up to 4K/ 8MP.
- Video output resolution up to 4K for HDMI, 1080p for VGA, and NTSC/ PAL for CVBS.
- Built-in loop out for daisy chain or a DVR.
- Built-in 3.5mm audio input (Output through HDMI TV or external audio accepter).
- Built-in RS232 Interface for RS232 commands or firm ware upgrade.
- Camera video displays on HDMI, VGA, CVBS displays at the same time.
- Supports PIP (Picture in Picture).
- Support OSD (On Screen Display) to configure parameter.
- Support UTC (Up the Coaxial) control and pass through.

Diagram

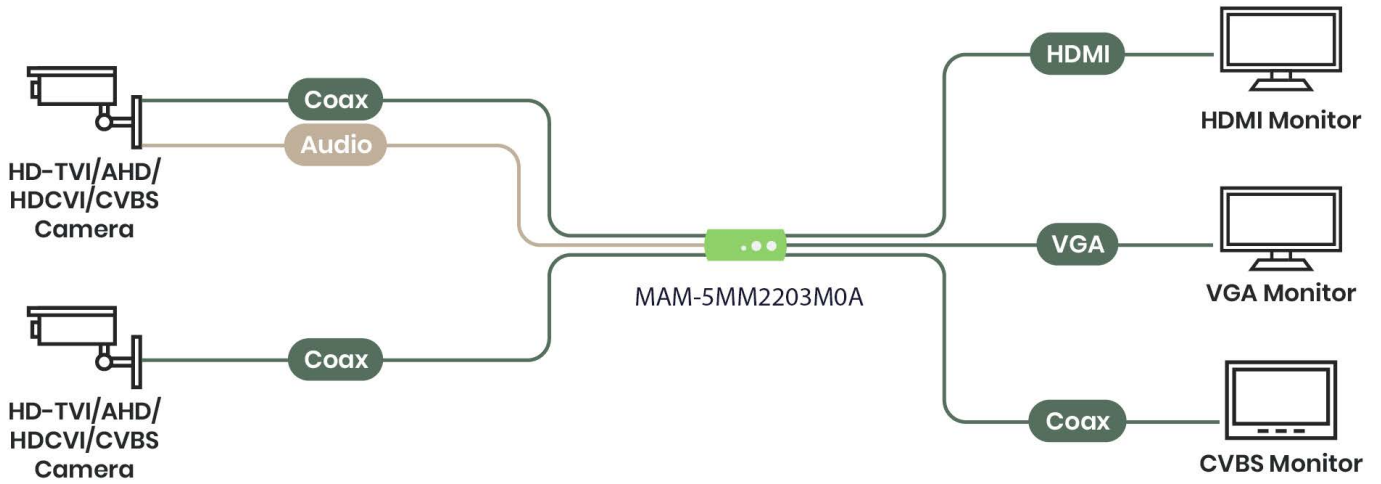
1 in 4 out Mode (HDMI, VGA, CVBS output at the same time)



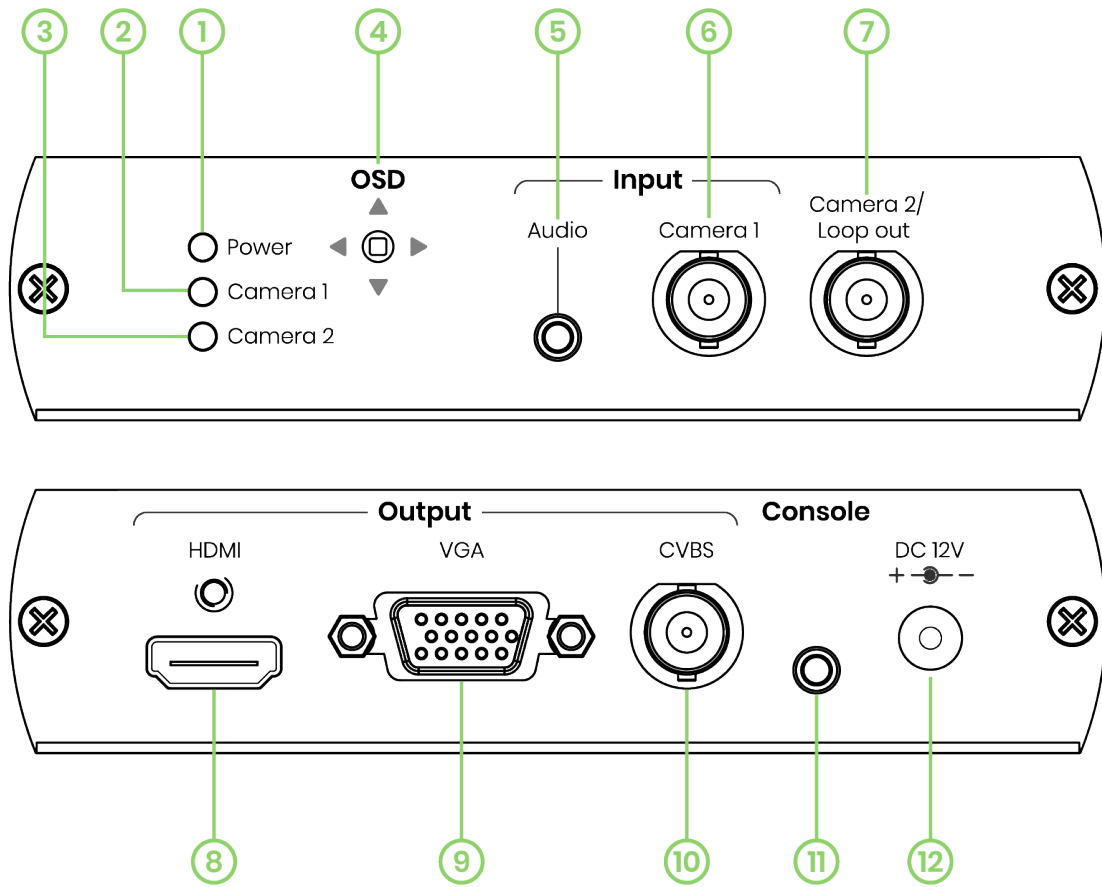
2 in 2 out Mode (Dual cameras with PIP)



2 in 3 out Mode (Dual cameras with manual switching Cam 1/2)



Panel View



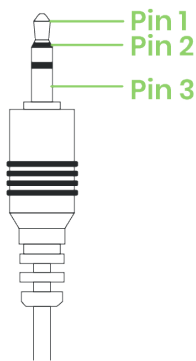
No	Interface	Function
1	Power LED	To indicate power status (Refer to Description 1).
2	Camera 1 LED	To indicate Camera 1 status (Refer to Description 1).
3	Camera 2 LED	To indicate Camera 2 status (Refer to Description 1).
4	OSD	To control OSD menu (Refer to Description 4).
5	Audio	To use a 3.5mm audio cable to connect an audio source from a HD-TVI, AHD, HDCVI camera (Refer to Description 2).
6	Camera 1	To use a coaxial cable to connect with a HD-TVI, AHD, HDCVI camera (Refer to Description 2).
7	Camera 2 / Loop Out	To use a coaxial cable to connect with a HD-TVI, AHD, HDCVI camera, a DVR or another MAM-5MM2203M0A (Refer to Description 3, 5).
8	HDMI	To use an HDMI cable to connect with an HDMI display (Refer to Description 3).
9	VGA	To use a VGA cable to connect with a VGA display (Refer to Description 3).
10	CVBS	To use a coaxial cable to connect with a CVBS display (Refer to Description 3).
11	Console	To use a 3.5mm to RS232 cable to connect with a PC (Refer to Description 2).
12	DC 12V	To connect with a DC 12V 500mA power adapter.

Description 1– LED Indicator

Interface	LED Color	Status
Power	Green ON/ OFF	Power ON/ OFF
Camera 1	Green ON/ OFF	Signal Detected/ No Video
Camera 2	Green ON/ OFF	Signal Detected/ No Video

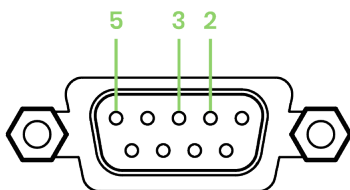
Description 2 – Installation and Cabling

- Avoid being in areas with electrical interferences, such as mobile phones, microwaves and so on, when installing your MAM-5MM2203M0A.
- Remove the power before installation.
- Audio Input
 - If connecting to a camera with a built-in microphone, MAM-5MM2203M0A can only output the video source.
- Console
 - Use DB9(Female) to 3.5mm stereo phone jack.
 - Configure RS232 parameter at 115200/ 8-N-1.
 - Pinout Instructions:



3.5mm Stereo Phone Jack	
PIN	Define
Pin 1	RX
Pin 2	TX
Pin 3	GND

Console



DB9 (Female)	
PIN	Define
Pin 2	TX
Pin 3	RX
Pin 5	GND

Description 3 – Video Format & Resolutions

Video Input Format & Resolutions (Auto Define HD- TVI, AHD, HDCVI, CVBS Video Format)

Resolutions	HD- TVI	AHD	HDCVI
8MP (4K)	12.5/15 FPS	15 FPS	15 FPS
6MP	X	X	20 FPS
5MP	12.5/20 FPS	20 FPS	X
4MP	25/30 FPS	25/30 FPS	25/30 FPS
2MP (1080p)	25/30 FPS	25/30 FPS	25/30 FPS
1.3MP (720p)	30 FPS	25/30 FPS	25/30/50/60 FPS

Video Output Format & Resolutions

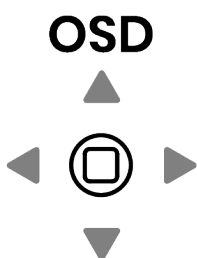
Resolution	HDMI	VGA	CVBS
4K2K	30/ 25Hz	X	X
2160p	30/ 25Hz	X	X
1080p	60/ 50Hz	60/ 50Hz	X
1080i	60/ 50Hz	60/ 50Hz	X
720p	60/ 50Hz	60/ 50Hz	X
576p	60Hz	60Hz	PAL
480p	60Hz	60Hz	NTSC

When HDMI/ VGA resolution is set to

- 480p, 720p@ 60, 1080i@ 60, 1080p@ 60, 2160p@ 30, 4K2K@ 30, CVBS will be NTSC.
- 576p, 720p@ 50, 1080i@ 50, 1080p@ 50, 2160p@ 25, 4K2K@ 25, CVBS will be PAL.

Description 4 – OSD Settings

Use 5- Way Tactile Switch to Control OSD Menu



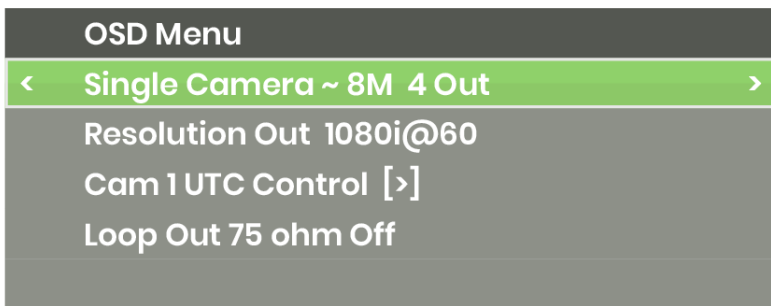
Button	Features
●	Turn ON/ OFF OSD menu
▲	Up
▼	Down
	Switch function
	Switch function

Turn On OSD Menu

Press **●** and enter OSD menu.

Switch Modes

Press **←** to select Single Camera (Default) and press **→** to change modes



Supported Modes

1 in 4 out mode (with UTC pass through/ control)

2 in 3 out mode

2 in 2 out mode (with PIP)

Refer to the chart below to change modes:

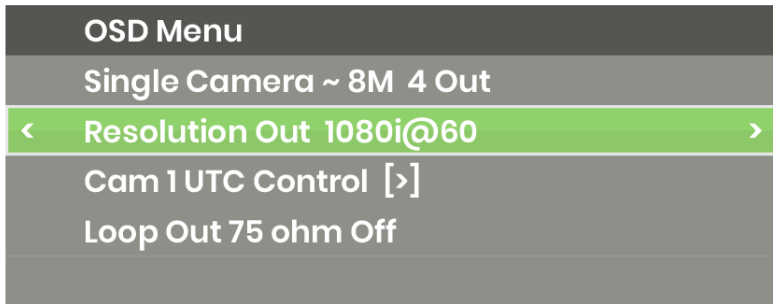
Interface		1 in 4 out	2 in 3 out	2 in 2out (PIP)
Input	Cam 1	Up to 8MP	Up to 1080p	Up to 1080p
	Cam 2	Loop out (Resolution same as Cam 1)	Up to 1080p	Up to 1080p
Output	HDMI	Up to 4K	Up to 4K	Up to 4K
	VGA	Up to 1080p	Up to 1080p	Up to 1080p
	CVBS	NTSC/PAL	NTSC/PAL	Not Supported

Caution

- ※ The resolution of the two cameras must be at the range between 480p and 1080p. Otherwise, the screen will display an OutRange reminder.
- ※ VGA resolution only supports up to 1080p.
- ※ Make sure your TV's supported resolutions when switching resolutions from MAM-5MM2203M0A.
- ※ Set up the same frame rate for both cameras when having dual camera inputs.

Change Resolutions

Press ▲▼ to select "Resolution Out", then press u to select a desired resolution

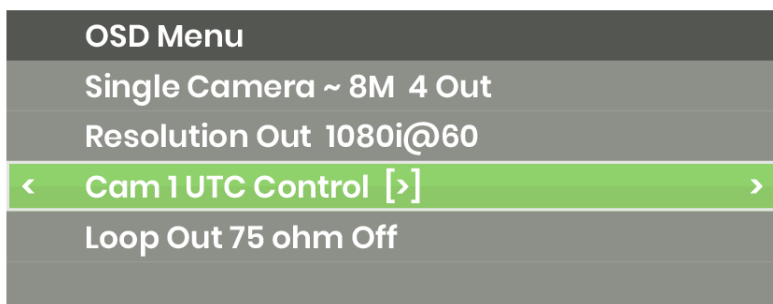


Refer to the chart below to switch the desired resolution :

Switching Order	Resolutions
1	480p
2	576P
3	720p@60Hz
4	720p@50Hz
5	1080p@60Hz
6	1080p@50Hz
7	2160p@30Hz
8	2160p@25Hz
9	4K2K@30Hz
10	4K2K@25Hz
11	1080i@60Hz
12	1080i@50Hz

Turn On UTC

In 1 in 4 out mode, press ▲▼ to select "UTC Control " and press u , and then you can press ▲▼t u to control camera directions.



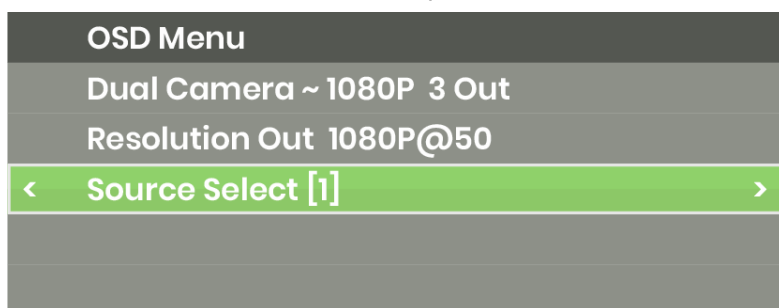
Turn Off UTC

In the semi-transparent OSD menu, select "Back to OSD MENU" and press **u** to turn off UTC.



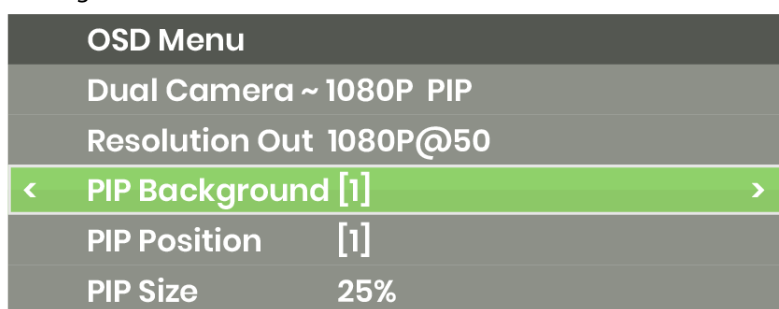
Change Video Source

In 2 in 2 out or 2 in 3 out modes, press **▲▼** to select "Source Select" and press **u** to choose Camera 1 or 2.



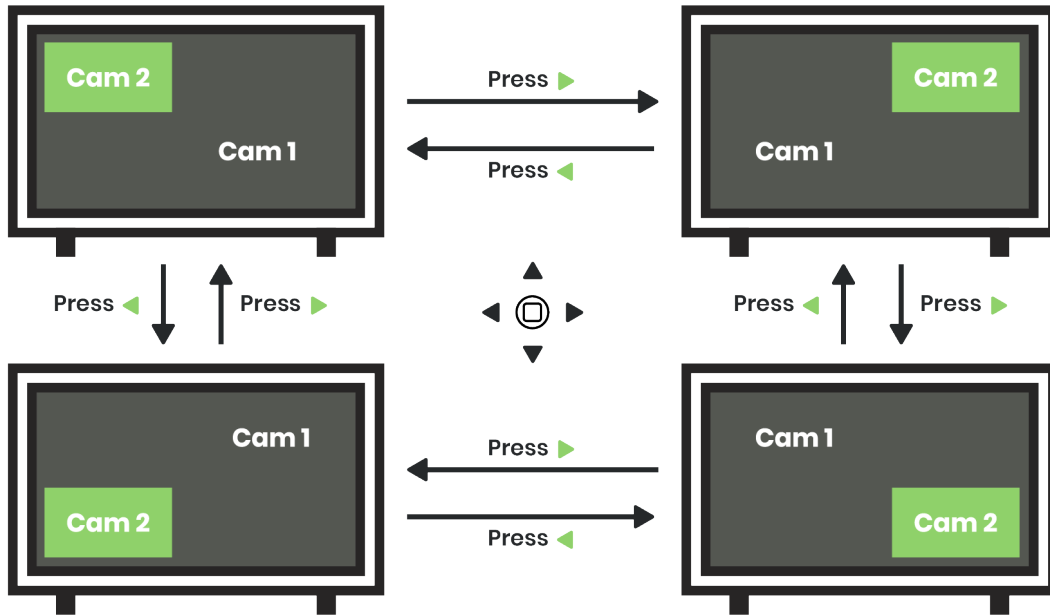
Turn on PIP

In 2 in 2 out mode, press **▲▼** to select "PIP Background" and press **u** to select Camera 1 or 2 as the background.



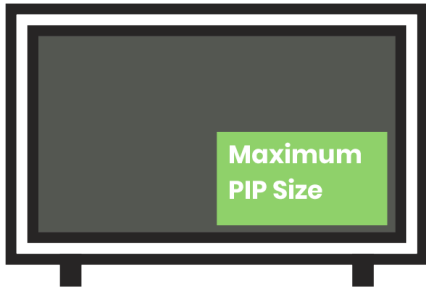
Change PIP Position

Press ▲▼ to select "PIP Position" and then press t or u to select position 1/ 2/ 3/ 4.



Adjust PIP Size

Press ▲▼ to select "PIP Size" and press t or u to enlarge/ reduce picture size (Max 1/4 TV size).



Perform Factory Reset

- Step 1-Press and hold ● when power off.
- Step 2 -Power on, and press and hold for 5 secs until seeing Camera 1 and Camera 2/ Loop out LEDs flashing.
- Step 3 -Wait for the device to reboot.

Factory Default

Default Mode	1in 4 out Mode
Default Resolution	480p
Default Dual Video	Camera 1[1]
Default PIP Background	Camera 1[1]
Default PIP Position	Upper Right [2]
Default PIP Size	20%

Loop out for Daisy Chain

Refer to the chart below to configure 75Ω impedance before daisy chain. Make sure to turn on 75Ω impedance when not using daisy chain.

Daisy Chain Limit

Resolution	Cable Length	Daisy Chain Amount
1080p	100M	4 pcs
4K	100M	2 pcs

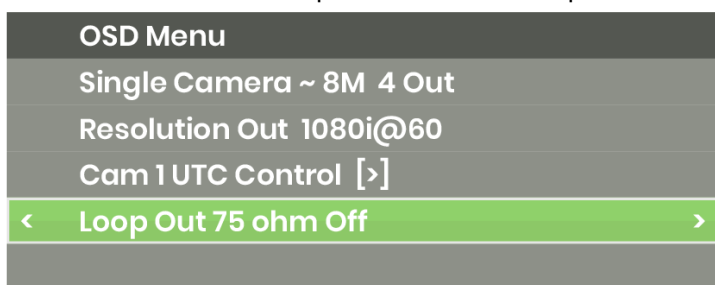
Daisy Chain Settings (Daisy chain 4 pcs of MAM-5MM2203M0A as the example below)

Last MAM-5MM2203M0A not connecting a DVR				
Daisy Chain Amount	# 1	# 2	# 3	# 4
1	75Ω ON			
2	75Ω OFF	75Ω ON		
3	75Ω OFF	75Ω OFF	75Ω ON	
4	75Ω OFF	75Ω OFF	75Ω OFF	75Ω ON

Last MAM-5MM2203M0A connecting a DVR				
Daisy Chain Amount	# 1	# 2	# 3	# 4
1	75Ω OFF → DVR			
2	75Ω OFF	75Ω OFF → DVR		
3	75Ω OFF	75Ω OFF	75Ω OFF → DVR	
4	75Ω OFF	75Ω OFF	75Ω OFF	75Ω OFF → DVR

Turn ON/ OFF 75Ω Impedance

Press ▲▼ to select "Loop Out 75 ohm" and press t u to turn ON/ OFF.



Caution

- ※ Turn ON 75Ω impedance when MAM-5MM2203M0A is not connected to a DVR; otherwise, turn OFF 75Ω impedance when connected with a DVR.
- ※ You can only configure 75Ω impedance in 1in 4 out mode. In other modes, it will turn ON the 75Ω impedance automatically.
- ※ When using daisy chain, MAM-5MM2203M0A won't support audio input for camera.

Description 5 – RS232 Commands

Commands	Functions
RESET	Perform Factory Reset
VERSION	Show Firmware Version
W	OSD ▲
A	OSD ▼
S	OSD t
D	OSD u
E	OSD ● Turn ON/ OFF
I	UTC ▲
K	UTC ▼
J	UTC t
L	UTC u
O	UTC ● Turn ON/ OFF
DEFAULT	Perform Factory Reset
HELP	Show All Commands
?	

Package

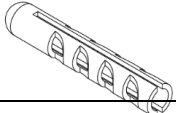
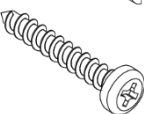

Item	Amount
MAM-5MM2203M0A	1 pc
DC 12V 500mA Power Adapter	1 pc
SMT Self tapping Screw	4 pcs
Wall Plug	4 pcs
Rubber Pad	4 pcs

Specification

Item No	MAM-5MM2203M0A
Support	
Video Format	HD-TVI, AHD, HDCVI, HDMI, VGA, CVBS
Video Input Resolution	8MP@ 12/15Hz
HDMI Resolution	480p、576p、720p/50/60、1080p/50/60、2160p/25/30、4K2K/25/30、1080i/50/60
VGA Resolution	480p、576p、720p@ 50/60、1080p@ 50/60、1080i@ 50/60
CVBS Resolution	NTSC、PAL
Ports & Interfaces	
Video Input	1x 75Ω BNC (1Vpp)
Video Output	1x HDMI Type A, 1x VGA (D-SUB 15), 1x 75Ω BNC (1Vpp)
Video Loop out	1x 75Ω BNC (1Vpp)
Audio Input	1x (3.5mm) Phone Jack
Console (RS232)	1x (3.5mm) Phone Jack
Power	
Power Supply	DC 12V 500mA/ DC 12V 1000mA
Power Consumption	320mA
Ambient Temperature	
Operation	0 to 70°C
Storage	-40 to 125°C
Humidity	up to 90%
Physical Characteristics	
Dimension	125 x 130 x 30mm
Weight	370g

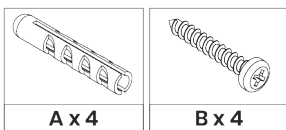
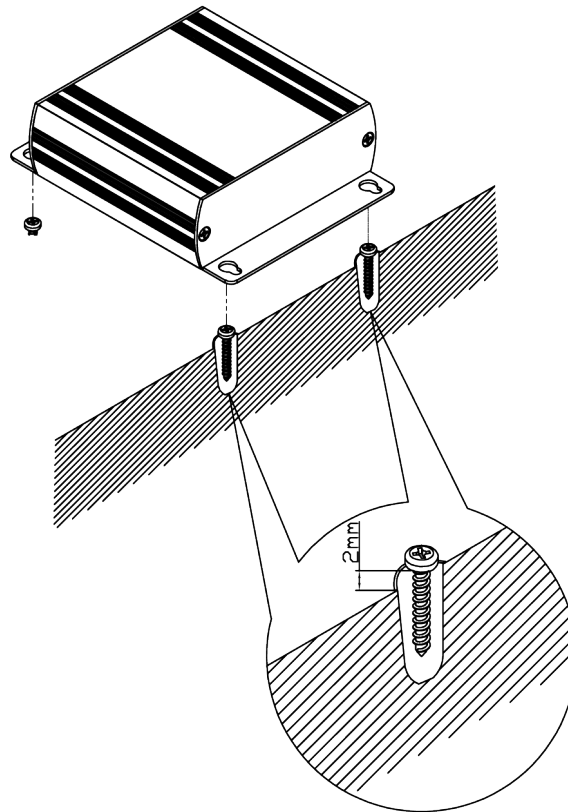
Installation Guide

Item

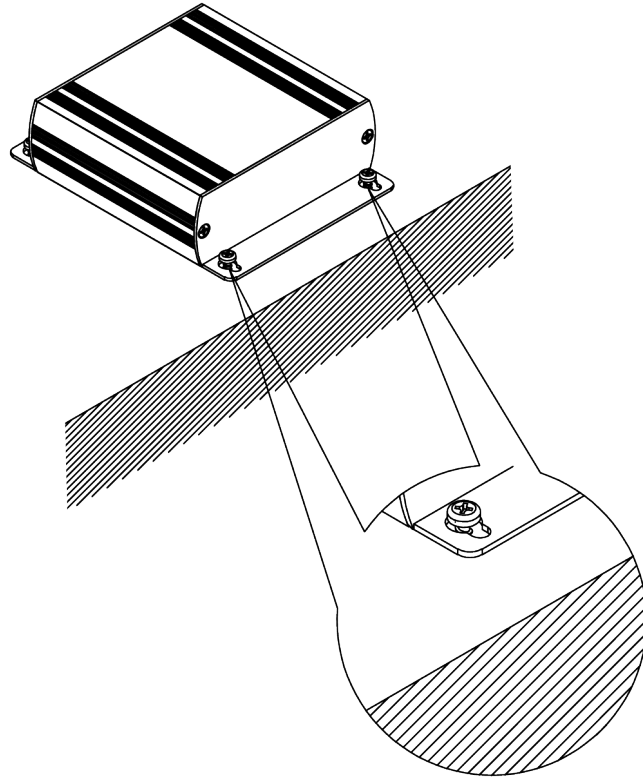
A	Wall Plug		x4
B	SMT Self-tapping Screw		x4
C	Rubber Pad		x4

Install On A Table Or A Wall

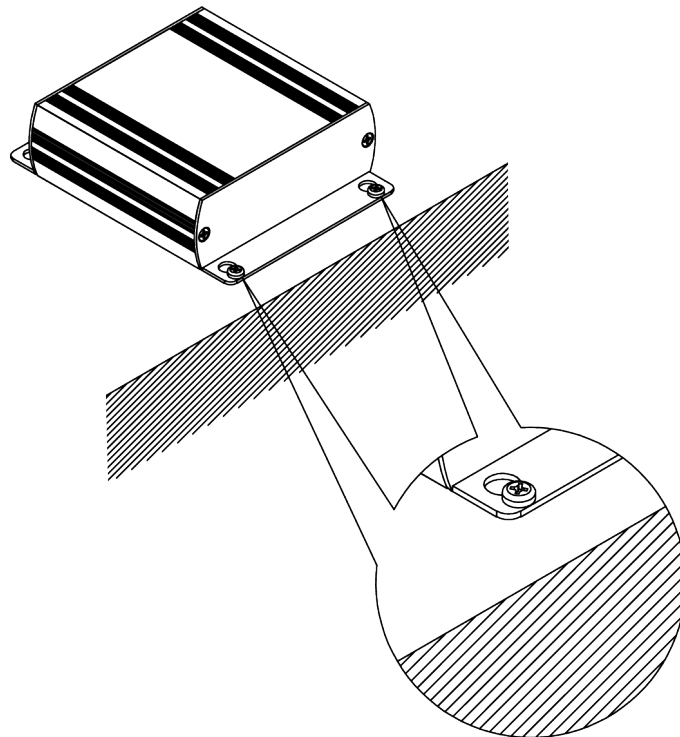
Step 1 Evenly fix SMT screws on a platform and leave a 2mm high clearance.



Step 2: Place MAM-5MM2203M0A on the platform and fit its holes in the corresponding screw positions.

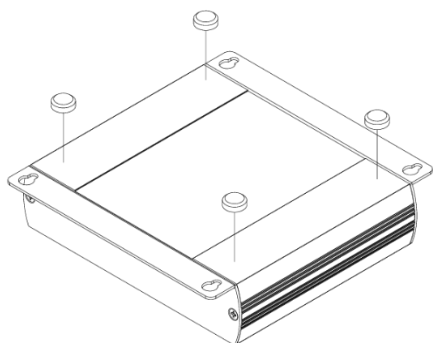


Step 3 : Move MAM-5MM2203M0A until it gets fixed.



Use Rubber Pads to Prevent the Product from Slipping down The Platform

Fix each rubber pad at each corner of the product.





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