



# MX-6544 and MX-6588 Small HDMI 2.0, 4K HDR matrices

## User Guide V1.00



# In this document

|                                                               |    |
|---------------------------------------------------------------|----|
| Introduction .....                                            | 1  |
| Features.....                                                 | 1  |
| About your MX-65xx .....                                      | 2  |
| Front panels.....                                             | 2  |
| Rear panels .....                                             | 3  |
| Remote control.....                                           | 4  |
| About EDIDs.....                                              | 5  |
| Routing .....                                                 | 5  |
| Checking the status of an output.....                         | 6  |
| Muting and unmuting video and audio on specific outputs ..... | 6  |
| Muting and unmuting video and audio on all outputs .....      | 6  |
| Clearing a selection.....                                     | 7  |
| Saving presets .....                                          | 7  |
| Loading presets.....                                          | 7  |
| Locking and unlocking the front panel .....                   | 8  |
| Copying the EDID of an output to an input .....               | 8  |
| Copying a default EDID to an input .....                      | 8  |
| MX-Tools.....                                                 | 9  |
| System requirements .....                                     | 9  |
| Using MX Tools.....                                           | 10 |
| Toolbar .....                                                 | 10 |
| First launch .....                                            | 10 |
| Routing tab .....                                             | 11 |
| Routing .....                                                 | 11 |
| Loading presets.....                                          | 11 |
| Saving presets .....                                          | 11 |
| EDID tab .....                                                | 12 |
| Copying a default EDID to an input .....                      | 12 |
| To copy a default EDID to an input .....                      | 13 |
| Copying an EDID from an output to an input .....              | 13 |
| Copying an EDID from a file to an input .....                 | 13 |

|                                                                        |    |
|------------------------------------------------------------------------|----|
| Viewing the current EDID for an input.....                             | 13 |
| Rename tab .....                                                       | 14 |
| Renaming inputs, outputs, and presets.....                             | 14 |
| Loading names for inputs, outputs, and presets from your MX-65xx ..... | 14 |
| System tab .....                                                       | 15 |
| Getting IP information from your MX-65xx.....                          | 15 |
| Entering static IP information .....                                   | 15 |
| Resetting to factory default settings .....                            | 15 |
| Viewing your current firmware version .....                            | 15 |
| Firmware tab .....                                                     | 16 |
| Updating your firmware.....                                            | 16 |
| To update your firmware from a USB drive.....                          | 16 |
| To update your firmware from a file on your computer ...               | 16 |
| Specifications.....                                                    | 17 |
| Parts and ordering.....                                                | 18 |
| Regulatory compliance.....                                             | 18 |
| Contact us .....                                                       | 20 |
| tvONE NCSA.....                                                        | 20 |
| tvONE EMEA .....                                                       | 20 |

# Introduction

The MX-65xx Matrix Switcher Series is designed to allow the distribution of HDMI 2.0a (with HDCP) sources to multiple display devices independently or all at the same time using an intuitive front panel, infrared remote control or our control software, MX-tools. The MX-65xx series is the perfect solution for all your installations including home theaters, classrooms or conference rooms that demand high levels of performance and superior 4:4:4 4K/60 image fidelity.

The MX-6588 is HDMI 2.0a compliant with full support for 4K2K@60 4:4:4 8bit and 10bit processing for superior deep color rendition. 3D signals are also supported. Audio includes 7.1 audio capability including DTS-HD and Dolby TrueHD.

# Features

- HDMI 2.0a compliant
- 4K2K@60 4:4:4 processing with 8bit and 10bit color depth
- HDR for deep color resolution
- HDCP 2.2 compliant
- Save up to 16 Presets
- Control via Front panel buttons, RS-232, TCP/IP, InfraRed and MX-tools
- Supports 7.1 channel digital audio, DTS, Master and Dolby TrueHD
- Auto detect EDID learning and management
- Robust 1RU rack-mountable metal case

# About your MX-65xx

## Front panels



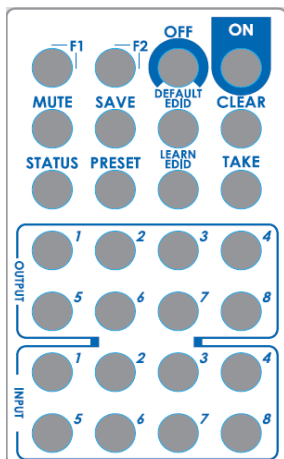
| Name    | Description                                                           |
|---------|-----------------------------------------------------------------------|
| POWER   | LED indicator ON when power is applied                                |
| IR      | Built-in IR sensor to receive IR signal from IR remote                |
| IR EXT  | 3.5 mm jack for external IR receiver                                  |
| Inputs  | Buttons with LED for routing inputs and preset recalling and saving   |
| Outputs | Buttons with LED for routing outputs and presets recalling and saving |
| Mute    | Press to turn off all video and audio to all outputs                  |
| All     | Press to select all outputs when routing                              |
| Take    | Press to execute selected route or recalling a preset                 |
| Clear   | Press to clear the selected inputs and outputs when routing           |
| Lock    | Press to lock all front panel buttons                                 |
| Preset  | Press to enter preset mode for saving or recalling presets            |

## Rear panels



| Name         | Description                                                 |
|--------------|-------------------------------------------------------------|
| Input        | HDMI inputs                                                 |
| Output       | HDMI outputs                                                |
| F/W          | This USB is for Firmware updates only                       |
| Ethernet     | Control port for TCP/IP commands                            |
| System IR In | IR input for control via Infrared when using an IR extender |
| RS232        | Serial port to control This device via RS232 commands.      |
| DC 12V       | Power input                                                 |
| Power Switch | Main power switch                                           |

## Remote control



| Button       | Function                                  |
|--------------|-------------------------------------------|
| OFF          | Standby mode                              |
| ON           | Power on the matrix switcher              |
| MUTE         | Turn off output's video and audio         |
| STATUS       | Preset output status                      |
| SAVE         | Preset Save                               |
| PRESET       | Load Preset                               |
| DEFAULT EDID | Begin default EDID selection              |
| LEARN EDID   | Begin EDID learning from one output       |
| CLEAR        | Clear the previous IR operation procedure |
| TAKE         | Trigger the previous setting              |
| F1           | Reserved                                  |
| F2           | Reserved                                  |



## About EDIDs

You only need to manually copy an EDID to an input if you have a display connected to the HDMI output port that cannot play audio and video properly.

Sources output the lowest standards in audio format and video resolutions to be commonly acceptable among all HDMI displays. You can force your MX-65xx to learn the EDID of your least capable HDMI display make sure all displays can play the HDMI signals normally. Read about copying EDIDs using the front panel or remote control on page 8.

Read more about copying EDIDs using MX-Tools on page 12.

## Routing

Routing can be performed via several control methods, IR remote, Serial and TCP/IP, MX-tools, and front panel buttons.

On the front panel:

1. To select an input, by press and release the desired input.  
The LED button lights.
2. Press and release the desired outputs.  
Each LED button lights.
3. Press TAKE to execute the desired routing.  
Once TAKE is pressed, all the LEDs turn off.

On the remote control:

1. Select the button for the output.
2. Select the button for the input.

## Checking the status of an output

On the remote control:

1. Press STATUS.
2. Press the button for the output.
3. Press TAKE.

## Muting and unmuting video and audio on specific outputs

On the buttons of the front panel:

1. Press MUTE.
2. Press the buttons for the outputs you want to mute or unmute.
3. Press TAKE.

On the remote control:

1. Press MUTE.
2. Press the buttons for the outputs you want to mute or unmute.
3. Press TAKE.

## Muting and unmuting video and audio on all outputs

On the buttons of the front panel:

1. Press MUTE.
2. Press ALL.
3. Press TAKE.

## Clearing a selection

On the buttons of the front panel:

- To clear all selections, press CLEAR.

## Saving presets

Finish routing before you save presets. The input or output button you choose becomes the new preset number.

On the buttons of the front panel:

1. Press PRESET.
2. Press and hold any input or output button until the LED flashes.

On the remote control:

1. Press SAVE.
2. Press any output button.
3. Press TAKE.

## Loading presets

On the buttons of the front panel:

1. Press PRESET.
2. Press the input or output button of the preset you want to load.
3. Press TAKE.

On the remote control:

1. Press PRESET.
2. Press the output button of the preset you want to load.
3. Press TAKE.

## Locking and unlocking the front panel

On the buttons of the front panel:

- To lock or unlock the front panel, press LOCK.

## Copying the EDID of an output to an input

On the buttons of the front panel:

1. Press and hold the button for the output you want to copy.
2. Press the button for the input or inputs you want to copy to.
3. Press TAKE.

Copying is finished when the output button flashes.

On the remote control:

1. Press LEARN EDID.
2. Press the button for the output you want to copy.
3. Press the button for the input or inputs you want to copy to.
4. Press TAKE.

## Copying a default EDID to an input

The default EDIDs available are:

1. Full-HD(1080p@60)-24bit 2D & 2ch
2. Full-HD(1080p@60)-24bit 2D & 7.1ch
3. Full-HD(1080p@60)-24bit 3D & 2ch
4. Full-HD(1080p@60)-24bit 3D & 7.1ch
5. HD(1080i@60)(720p@60)-24bit 2D & 2ch
6. HD(1080i@60)(720p@60)-24bit 2D & 7.1ch
7. Full-HD(1080p@60)-36bit 2D & 2ch
8. Full-HD(1080p@60)-36bit 2D & 7.1ch
9. Full-HD(1080p@60)-24bit 2D & 2ch & Dolby 5.1ch
10. 4k2k@30 2ch
11. 4k2k@30 7.1ch
12. 4k2k@30-3D-PCM2CH(2ch)

13. 4k2k@30-3D-BITSTR(7.1ch)
14. 4k2k@60-420-3D-PCM2CH(2ch)
15. 4k2k@60-420-3D-BITSTR(7.1ch)
16. 4k2k@60-3D-PCM2CH(2ch)
17. 4k2k@60-3D-BITSTR(7.1ch)

On the buttons of the front panel:

1. Press and hold MUTE until it flashes.
2. Press an input button to select an input to restore.
3. Press TAKE.  
Restoring is finished when ALL starts flashing.

On the remote control:

1. Press DEFAULT EDID.
2. Press an output button to select a default EDID.
3. Press an input button to select an input to restore.
4. Press TAKE.

## MX-Tools

MX-Tools is the control software for your MX-65xx.

### System requirements

- OS Information: MS WinXP/7
- Software size: 1 MB
- Minimum RAM requirement: 256 MB
- Serial Com Port Baud rates: 9600
- TCP/IP

# Using MX Tools

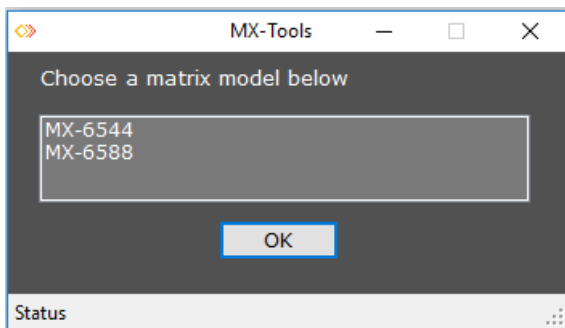
## Toolbar



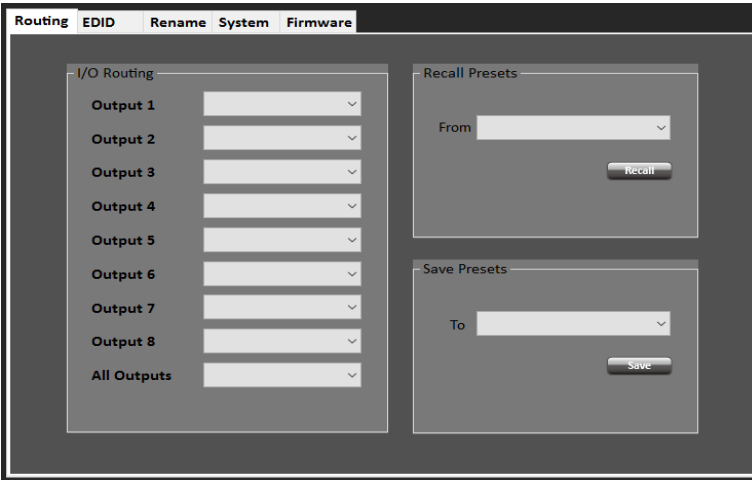
- |   |                                                  |
|---|--------------------------------------------------|
| A | Power on.<br>Enter standby mode.                 |
| B | Connect to and control your MX-65xx with RS-232. |
| C | Connect to and control your MX-65xx with TCP/IP. |
| D | Select a COM port. Use this with RS-232.         |

## First launch

When you first launch MX-Tools, select your MX-65xx model.



## Routing tab



## Routing

- For each output, select an input from the list.

## Loading presets

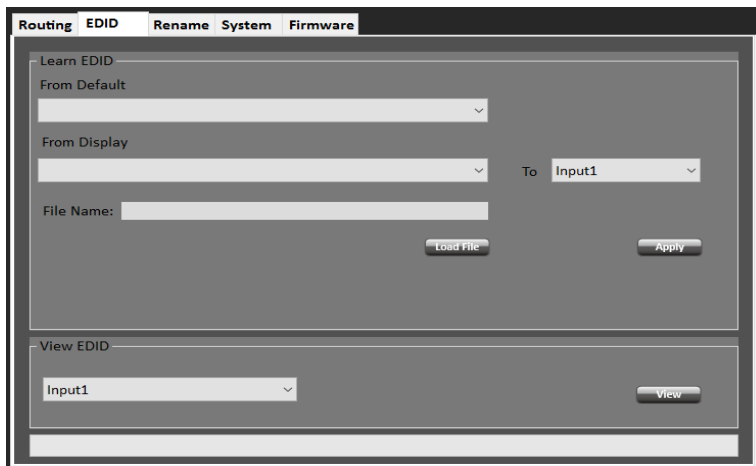
1. Select a stored preset from Recall Presets.
2. Select Recall.

## Saving presets

1. Select a preset from Save Presets.
2. Select Save.

## EDID tab

MX-Tools can automatically generate the correct EDID values for all your connected inputs. You can also select an EDID for each input from a display, from the default EDID list, or from a file.



## Copying a default EDID to an input

The default EDIDs available are:

18. Full-HD(1080p@60)-24bit 2D & 2ch
19. Full-HD(1080p@60)-24bit 2D & 7.1ch
20. Full-HD(1080p@60)-24bit 3D & 2ch
21. Full-HD(1080p@60)-24bit 3D & 7.1ch
22. HD(1080i@60)(720p@60)-24bit 2D & 2ch
23. HD(1080i@60)(720p@60)-24bit 2D & 7.1ch
24. Full-HD(1080p@60)-36bit 2D & 2ch
25. Full-HD(1080p@60)-36bit 2D & 7.1ch
26. Full-HD(1080p@60)-24bit 2D & 2ch & Dolby 5.1ch
27. 4k2k@30 2ch
28. 4k2k@30 7.1ch
29. 4k2k@30-3D-PCM2CH(2ch)
30. 4k2k@30-3D-BITSTR(7.1ch)



31. 4k2k@60-420-3D-PCM2CH(2ch)
32. 4k2k@60-420-3D-BITSTR(7.1ch)
33. 4k2k@60-3D-PCM2CH(2ch)
34. 4k2k@60-3D-BITSTR(7.1ch)

### **To copy a default EDID to an input**

1. Select an EDID from **From Default**.
2. Select an input from **To**.
3. Select **Apply**.

### **Copying an EDID from an output to an input**

1. Select an output from **From Display**.
2. Select an input from **To**.
3. Select **Apply**.

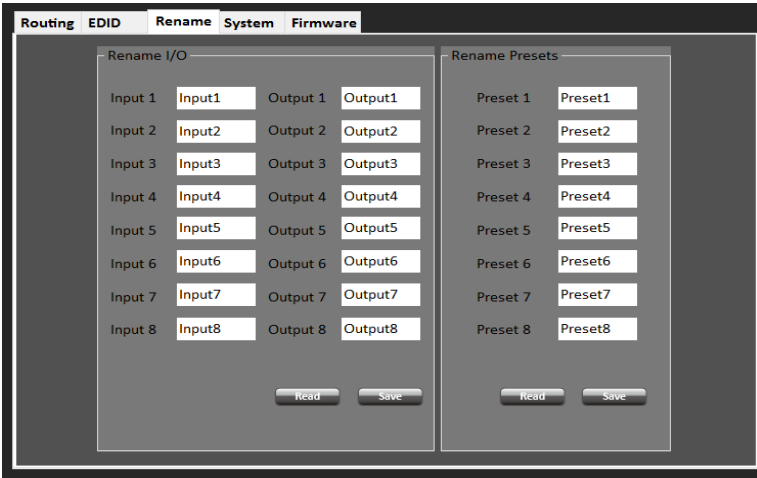
### **Copying an EDID from a file to an input**

1. Enter the file name.
2. Select **Load File**.
3. Select an input from **To**.
4. Select **Apply**.

### **Viewing the current EDID for an input.**

1. Select an input from **View EDID**.
2. Select **View**.

## Rename tab



## Renaming inputs, outputs, and presets

- Enter a new name for the preset.

## Loading names for inputs, outputs, and presets from your MX-65xx

- Select Read for either inputs and outputs, or presets.

## System tab

- ! Cloud settings are not currently available.

The screenshot shows a web-based configuration interface for a network device. At the top, there are tabs for 'Routing', 'EDID', 'Rename', 'System', and 'Firmware'. The 'System' tab is selected. The interface is divided into three main sections: 'Network', 'System', and 'Cloud setting'.  
- The 'Network' section has two radio buttons: 'DHCP' (selected) and 'Static'. Below them are input fields for 'IP', 'Mask', and 'Gateway', each with a 'Read' button underneath. A 'Save' button is located at the bottom right of this section.  
- The 'System' section contains a red 'Factory Reset' button and a 'Firmware Version' button.  
- The 'Cloud setting' section has two rows: 'Association Code : [input field] [Apply]' and 'Reset Cloud : [input field] [Apply]'.

## Getting IP information from your MX-65xx

1. Select DHCP.
2. Select Read.

## Entering static IP information

The default static IP is 192.168.1.123.

1. Select **Static**.
2. Enter your IP address, mask, and gateway.
3. Select **Save**.

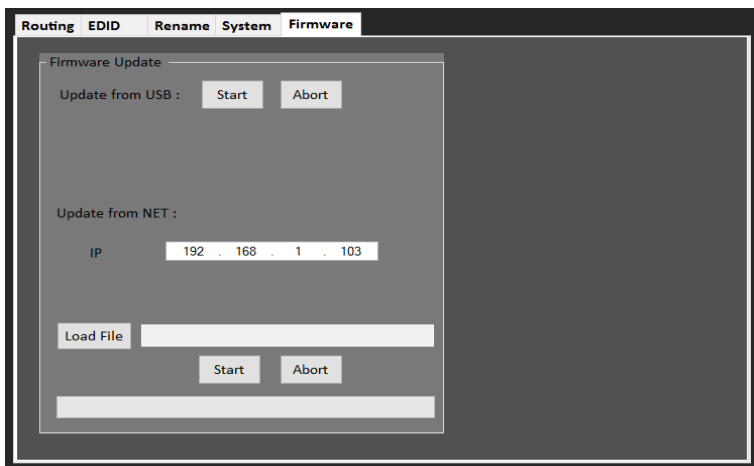
## Resetting to factory default settings

- Select **Factory Reset**.

## Viewing your current firmware version

- Select **Firmware Version**

## Firmware tab



### Updating your firmware

- Check your current firmware version on the **System** tab.
- You can update your firmware from a USB drive connected to your MX65-xx, or from a file stored on your computer.
- If you want to use a USB drive, make sure the firmware file is stored in the root directory, and has the file type **.bin**.
- If you want to use a file stored on your computer, your computer and your MX65xx must be in the same domain.
- Updating firmware takes about five minutes.

#### To update your firmware from a USB drive

1. Connect your USB drive to the F/W port on the rear of your MX-65xx.
2. Select (Update from USB) Start.

#### To update your firmware from a file on your computer

1. Enter the IP address of your MX-65xx.
2. Select Load File and navigate to the new firmware file.
3. Select (Upload from NET) Start.

## Specifications

|                         |                                                                                                                                                        |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| HDMI compliance         | HDMI 2.0a                                                                                                                                              |
| HDCP compliance         | HDCP 1.4 / HDCP 2.2                                                                                                                                    |
| Video bandwidth         | Single-link 594 MHz [18 Gbps]                                                                                                                          |
| Video support           | HDR 4K2K@60 (4:2:0 10bits)<br>4K2K@60 (4:4:4 8bits)                                                                                                    |
| Audio support           | Surround sound<br>up to 7.1 channels or stereo digital audio                                                                                           |
| Input                   | 8 x HDMI (MX-6588)<br>4 x HDMI (MX-6544)<br>1 x 9-pin D-sub Female (RS-232)<br>1 x Ethernet<br>1 x 3.5mm IR receiver<br>1 x USB Type A (Firmware only) |
| Output                  | 8 x HDMI (MX-6588)<br>4 x HDMI (MX-6544)                                                                                                               |
| Control                 | Front panel button, IR remote control,<br>RS-232 control, TCP/IP and MX-tools                                                                          |
| MTBF (hrs)              | MX-6588: 51,000<br>MX-6544: 103,000                                                                                                                    |
| Enclosure               | Metal case                                                                                                                                             |
| Dimensions<br>H x W x D | MX-6588: 44 x 440 x 220 mm<br>(1.7" x 17.3" x 8.6")<br>MX-6544: 42 x 440 x 177mm<br>(1.6" x 17.3" x 6.9")                                              |
| Weight (Net)            | MX-6588: 2.7 kg (5.9 lbs)<br>MX-6544: 2.4 kg (5.2 lbs)                                                                                                 |
| Power supply            | MX-6588: 12V 7.5A DC<br>MX-6544: 12V 2A DC                                                                                                             |
| Power Consumption       | MX-6588: 60 Watts (max)<br>MX-6544: 25 Watts (max)                                                                                                     |
| Operating Temp          | 0 to 40 °C (32 to 104 °F)                                                                                                                              |
| Relative Humidity       | 20% to 90% Non-condensing                                                                                                                              |
| Storage Temp            | -20 to 60 °C (-4 to 140 °F)                                                                                                                            |

## Parts and ordering

|                    |                                                               |
|--------------------|---------------------------------------------------------------|
| MX-6588            | 8x8 HDMI 2.0 HDR Matrix Switcher                              |
| MX-6544            | 4x4 HDMI 2.0 HDR Matrix Switcher                              |
| PS-12-75-IEC-LK    | Replacement PSU 12v 7.5A with IEC 3 pin connector for MX-6588 |
| PS-12-20-IEC-C8-LK | Replacement PSU 12v 2A with IEC 2 pin connector for MX-6544   |
| IRC-6              | Replacement 28 key IR Remote for the MX-6588 and MX-6544      |

## Regulatory compliance

This product has been tested for compliance with appropriate FCC and CE rules and regulations. The power adaptor/supply has been tested for compliance with appropriate UL rules, regulations and/or guidelines. This product and power adapter is RoHS compliant.



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