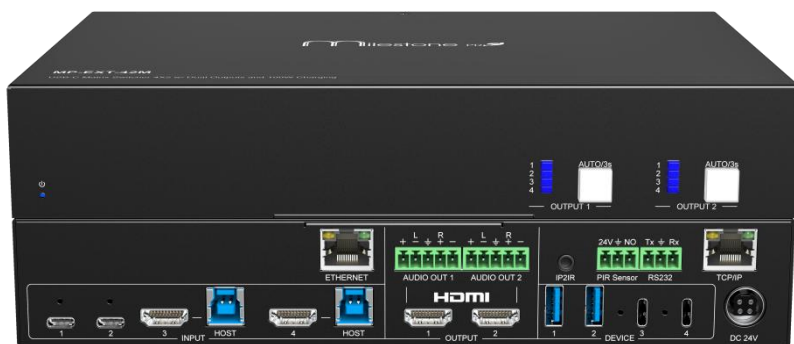




User Manual

MP-EXT-42M

USB-C Matrix Switcher 4X2 w/ Dual Outputs and 100W Charging



All Rights Reserved

Version: MP-EXT-42M _V1.0

Preface

Read this user manual carefully before using the product. Pictures shown in this manual are for reference only. Different models and specifications are subject to real product.

This manual is only for operation instruction, please contact the local distributor for maintenance assistance. The functions described in this version were updated by Jan, 2026. In the constant effort to improve the product, we reserve the right to make functions or parameters changes without notice or obligation. Please refer to the dealers for the latest details.

FCC Statement

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference.

Any changes or modifications not expressly approved by the manufacture would void the user's authority to operate the equipment.



SAFETY PRECAUTIONS

To ensure the best from the product, please read all instructions carefully before using the device. Save this manual for further reference.

- Unpack the equipment carefully and save the original box and packing material for possible future shipment.
- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not put any heavy items on the extension cable in case of extrusion.
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with fine ventilation to avoid damage caused by overheating.
- Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Do not twist or pull by force ends of the cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.
- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical wastes.

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1. Product Introduction

MP-EXT-42M is a USB-C Matrix Switcher with 4 inputs and 2 HDMI outputs, support max 4K@60 4:4:4 input and output. When connected with a 24V6.5A DC power supply, it supported to charge Input 1 and 2 together or separately.

MP-EXT-42M is powerful input performance, also powerful in output and peripheral supporting. 2 HDMI outputs support to output video separately, meanwhile each output equipped with terminal connector for de-embedding analog audio, 2 USB-A and 2 USB-C devices for different types of KM devices to make it compatible with most USB devices, PIR sensor supported for easy system control, serial control.

1.1 Features

- 4 x 2 USB-C matrix switcher, supports max 4K@60Hz 4:4:4.
- Support max 100W charging for USB-C input.
- Ethernet available for USB-C inputs.
- 4 USB 3.2 Gen1 (5Gbps) device ports sharing 3A current and power management.
- RS232 Control, WEB Control available, 5V IR control Display.
- Supports auto-switching and audio de-embedding.
- PIR sensor for system control.

1.2 Packing List

- 1x MP-EXT-42M
- 2x Mounting Ears with 4 Screws
- 4x Plastic Cushions
- 2x 5pin terminal connector
- 2x 3pin terminal connector
- 1x DC 24V/6.5A Power Adapter (EU Power Cable)
- 1x User Manual

Note: Please contact your distributor immediately if any damage or defect in the components is found.

2. Specification

Video Input	
Input Connector	(2) USB-C; (2) HDMI 2.0;
Input Resolution	Up to 4K@60Hz 4:4:4
USB HOST	(2) USB-C and (2) USB-Type B for HDMI Input control and Devices switching
Host Bandwidth	5Gbps
Video Output	
Output	(2) HDMI 2.0
Output Connector	(1) Female type-A HDMI
HDMI Output Resolution	Up to 4K@60Hz 4:4:4 (18Gbps)
HDMI Standard	2.0b
HDCP Version	2.2/1.4 compliant
USB Devices	
Connector	(2) USB-A, (2) USB-C
USB Standard	Sharing 3A power
USB bandwidth	5Gbps
Ethernet	
Standard	10/100/1000Base-T
General	
Bandwidth	18Gbps
Operation Temperature	-5 ~ +55°C
Storage Temperature	-25 ~ +70°C
Relative Humidity	10% - 90%
Power Supply	Input:100V~240V AC; Output: 24V DC 6.5A
Power Consumption	154W Max (with 120W sharing charging for input 1 and input 2)
Dimension (W*H*D)	241.0mm x 156.0mm x 41.5mm
Compliance	FCC, CE

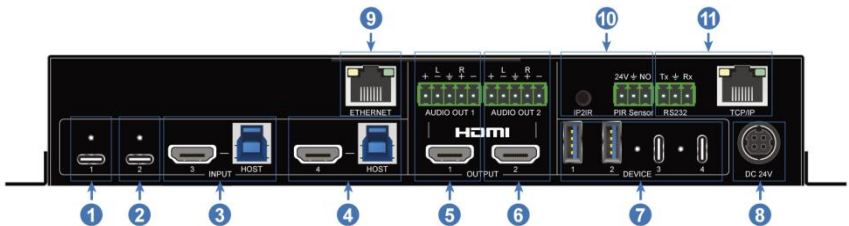
3. Panel Description

3.1 Front Panel



- ① **Power LED:** 1x Power status indicator, to show unit power status, The LED illuminates blue when power is applied. Red color for standby mode.
- ② **Output button:** 2x white button with integrated blue led indicator inside, Press to switch input for Output1 or Output 2, long press the button for 3s to turn on auto switching and meanwhile the indicator inside will illuminates blue.
- ③ **Input indicator:** 2x 4 Blue LED indicator, illuminate blue when related input were chosen for output.

3.2 Rear Panel



- ① ~ ② **INPUT 1 & 2:** 2 x USB-C ports with fastening screw hole, to connect with source.
- ③ ~ ④ **INPUT 3 & 4:** 2 x HDMI 2.0 ports to connect with source;
2 x USB-B Host ports, to provide external control for HDMI input .
- ⑤ ~ ⑥ **Output 1 & 2:** 2 x HDMI 2.0 ports to connect with source;
2 x 5Pin terminal connector to output de-embedding audio.
- ⑦ **Devices:** 2x USB-A port and 2x USB-C port to connect with KM device.

- ⑧ **DC 24V:** 1x 4pin DC connect with DC PSU.
- ⑨ **Ethernet:** 1x RJ45 connector, to connect with router.
- ⑩ **IP2IR:** 1x 3.5mm jack connector to connect with IR emitter.

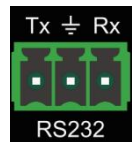
PIR Sensor: 1x 3 pin terminal connector to connect with PIR sensor for controlling.

- ⑪ **RS232:** 1x 3pin terminal connector, to connect with control PC for serial control.

TCP/IP: 1x RJ45 connector, to connect with your control PC for Web control.

4. RS232 Control

MP-EXT-42M was default to have a terminal connector on chassis for Commands control. Connect your unit with your control PC, after basic settings then you can send commands to control the



4.1 Connection

Please connect your unit with you control PC,using a serial cable.

4.2 Tool settings:

First: Download the serial tool to the control computer that connected with unit.Here we take “commwatch” as an example, the icon is like picture on the right side.



Second: Connect unit with all input and output needed,

Third: Connect your unit with you control PC,using a serial cable.

Forth: Set up serial tool parameters,

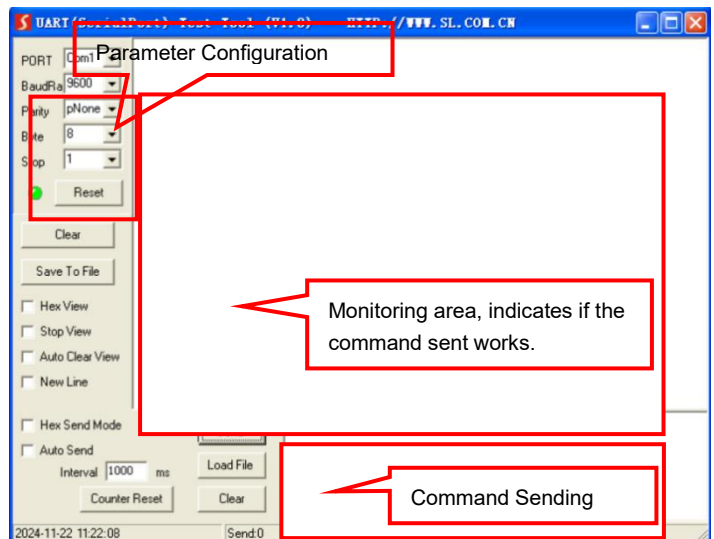
Please set the parameters of COM number, serial parameters correctly as below:

Baud Rate: 9600

Parity: none

Data bit: 8

Stop bit: 1



4.3 RS232 Command

NO.	RS232CMD	Description	Example feedback
1	HELP	Query system commands list	List commands 1.HELP 2.STATUS 3.RESET 4.REBOOT 5.POWER:ON 6.POWER:OFF 7.POWERSTATUS 8.LOCKED 9.UNLOCKED 10.CHARGEMODE:<x> 11.IRHEXSEND:<xx xx xx xx...> 12.AUTOSWITCH<x>:<y> 13.AUTOSWITCHSTATUS 14.AUDDEC<x>:ON 15.AUDDEC<x>:OFF 16.SIGTRGMODE:<x> 17.VIDEO[x]:<y> 18.USB:<x> 19.USBMODE:<x> 20.EDID<x>:<y> 21.EDIDU:<x> 22.SET IP:<xxx.xxx.xxx.xxx> 23.SET MASK:<xxx.xxx.xxx.xxx> 24.SET GATEWAY:<xxx.xxx.xxx.xxx> 25.DHCP:ON 26.DHCP:OFF 27.DHCPSTATUS 28.RS232SEND:<y>:<z>:<aaa> 29.SENSOR:ON 30.SENSOR:OFF 31.CECI[x]:<y> 32.CECO[x]:<y> 33.SENSOR:ON 34.SENSOR:OFF

2	STATUS	Query system status.	- Model name:MP-EXT-42M - Model type:4X2 USB-C Matrix Switcher - FW Version: V1.0.0 - Power: on - Front panel: unlocked - Local RS232 baudrate: 9600 - MAC: 80-7D-AB-19-E0-D4 - DHCP: on - IP: 192.168.0.178 - Netmask: 255.255.255.0 - Gateway: 192.168.0.1 - Output 1 auto switch mode: video signal - Output 2 auto switch mode: video signal - Input 1 EDID: 0 - Input 2 EDID: 0 - Input 3 EDID: 1 - Input 4 EDID: 0 - Output 1: input 1 - Output 2: input 1 - Output 1 auto switch: on - Output 2 auto switch: on - Down scale : on - USB : input 1 - USB switch mode: manual - USB Charge mode: USB 1 100W - USBC Lane mode: 2 lane - HDCP: follow input. - Analog audio 1: off - Analog audio 2: on - Output 1 video: off - Output 2 video: on - Output 1 audio: on - Output 2 audio: on - PIR sensor: off
3	RESET	Reset unit to factory status	OK: Factory Default.
4	REBOOT	Reboot unit	OK: System Reboot.
5	POWER:ON	Power on unit	OK: Power on.
6	POWER:OFF	Set unit to standby status	OK: Power off.
7	POWER STATUS	Query system Power status, power on or standby	- Power: on

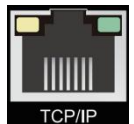
8	BAUDRATE: <x>	Set unit System RS232 baudrate, Support to use code or baudrate. 1:2400 2:4800 3:9600 4:19200 5:38400 6:57600 7:115200	OK: Set baudrate to 9600.
9	VIDEO[X]:<Y>	Switch input <x> =0-2, 0= all output; 1-2= output 1-2 <y> = 1-4, Input1-4	OK: Output 1 switch to input 1.
10	USB:<y>	set USB Host y=1-4, Input 1-4	OK: All Devices switch to host 1.
11	USBMODE:<Y>	Switching USB device mode Y= USB device MODE 0=Switching USB device manually 1=Set USB device to follow output 1 2=Set USB device to follow output 2	OK: Change USB mode to manual.
12	EDIDU:<X>	Upload User defined EDID x=1-2, User Defined EDID 1-2	
13	EDID[X]:<Y>	choose Input EDID x=0-4 0= all input 1-4= input 1-4 y=EDID number	OK: All input EDID upgraded by internal 1 EDID.
14	SIGTRGMODE:<y>	Set signal detection mode y=1 5V detection y=2 TMDS detection	OK: Set output 1 signal trigger mode to hot plug. OK: Set all output signal trigger mode to video signal.
15	IRHEXSEND:<X>	Send IR command.(must HEX format) X= HEX IR code	

16	CHARGE MODE: <x>	Set charging mode for input X=0-2 0=Input 1 and Input 2 charging together, support max 60W PD charging for each input X=1, charging Input 1, 100W max X=2, charging input 2, 100W max	OK: Set input 1 and 2 to support 60W charging.
17	IRHEXSEND:<X>	Send IR command.(must HEX format) X= HEX IR code	IRHEXSEND:0000 006C 0000 0022 015B 00AD 0016 0016 0016 0016 0016 0016 0016 0041 0016 0041 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0041 0016 0016 0016 0016 0016 0041 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0016 0016 0041 0016 0016 0016 0041 0016 0041 0016 0041 0016 0041 0016 0016 0016 0041 0016 0016 0016 0041 0016 0679.
18	AUDDEC<x>:ON	Enable Audio breakout x=1-2,Audio out 1-2	OK: Set audio output 1 on.
19	AUDDEC<x>:OFF	Disable Audio breakout x=1-2,Audio out 1-2	OK: Set audio output 1 off.
20	AUTOSWITCH<X>:ON	Enable output auto switching x=1-2, output 1-2	OK: Set output 1 auto switch on.
21	AUTOSWITCH<X>:OFF	Disable output auto switching x=1-2, output 1-2	OK: Set output 1 auto switch off.
22	AUTOSWITCH STATUS	Query output 1-2 Autoswitch status	- Output 1 auto switch: off - Output 2 auto switch: off
23	LOCKED	Lock front panel buttons	OK: Front panel locked.
24	UNLOCKED	Unlock front panel buttons	OK: Front panel unlocked.
25	SET IP: <xxx.xxx.xxx.xxx>	Set unit GUI login IP address	OK: IP addr: 192.168.0.178

26	SET MASK: <xxx.xxx.xxx.xxx >	Set unit GUI login net Mask	OK: IP Mask: 255.255.255.0
27	SET GATEWAY: <xxx.xxx.xxx.xxx >	Set unit GUI login gateway	OK: IP Gateway: 192.168.0.1
28	DHCP:ON	Enable DHCP mode	OK: DHCP on.
29	DHCP:OFF	Disable DHCP mode (switch to static IP address)	OK: DHCP off.
30	DHCPSTATUS	Query DHCP status	- DHCP: off
31	CECI[x]:<yyy>	Send CEC command to input X= 0 all HDMI input x=1-2, HDMI input 3-4 yyy= CEC command, must set HEX format commands and support max 12 byte.	OK: Input 2 CEC send <04 44 4A>.
32	CECO[x]:<yyy>	Send CEC command to output X= 0 all HDMI output x=1-2, HDMI output 1-2 yyy= CEC command, must set HEX format commands and support max 12 byte.	OK: Output 1 CEC send <40 04>. OK: Output 1 CEC send <40 36>.
33	SENSOR:ON	Enable PIR Sensor	OK: Set PIR sensor on.
34	SENSOR:OFF	Disable PIR Sensor	OK: Set PIR sensor off.

5. Web UI Control

MP-EXT-42M is designed with a RJ45 TCP/IP port for GUI control. Unit was default set to DHCP mode, Open browser and enter the IP address for GUI control.



5.1 Log in

It was default DHCP mode, when not get IP from Router or switch, user can reach to Web UI through the default IP settings as below:

IP Address: 192.168.0.178

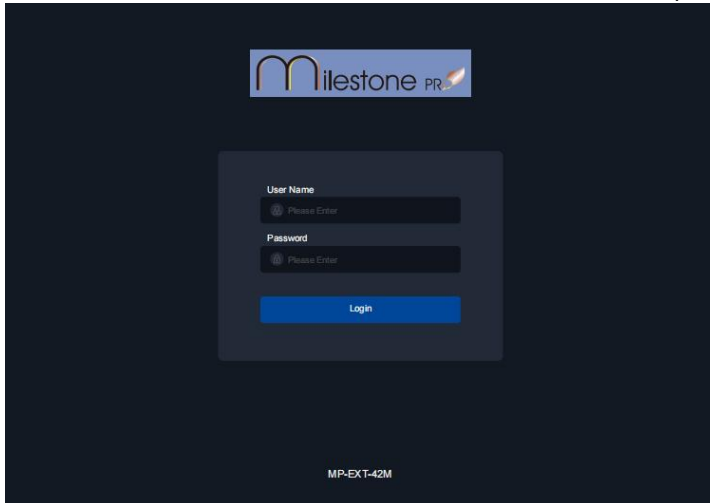
Subnet Mask: 255.255.255.0

Gateway: 192.168.0.1

Telnet Port: 4001

Type **192.168.0.178** in the internet browser, it will enter the below log-in webpage:

MP-EXT-42M need to log in for safety and support 2 kind of roles, Admin and Guest, with different access in the unit control, Guest comes with basic switching function and Admin comes with all function, here we take Admin for an example,



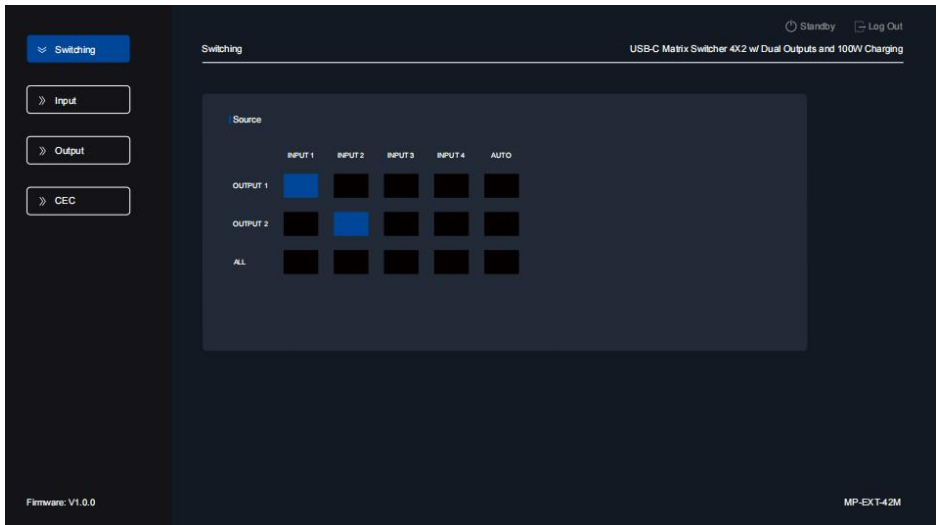
Admin credential: User Name: Admin

Password: Admin

Cautious: after the first time log in, system will ask to change the password for security.

5.2 Switching

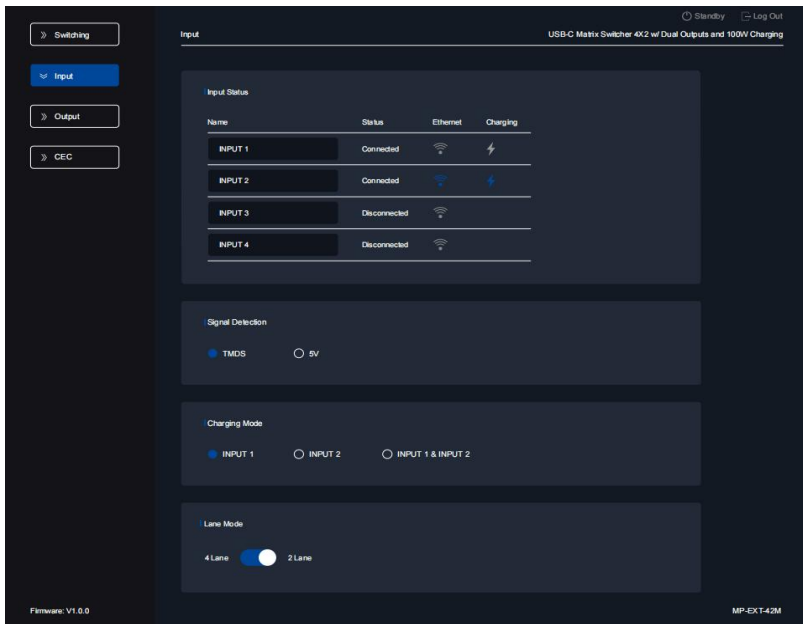
Here is for input switching, support manual switching and Auto switching, manual switching priority is higher than auto switching. System will sync with input indicator.



5.3 Input

Input Tab shows input status and related settings.

Input Status:Support rename input and check Ethernet status and Charging status.



Signal Detection: Set the input detection, detect 5V signal or TMDS Signal.

Charging mode: Unit support 100W max charging input 1 / 2, or charging input 1 and 2 together but max 60W.

Lane Mode: Set the input Lane Mode, 2 Lane or 4 Lane.

5.4 Output

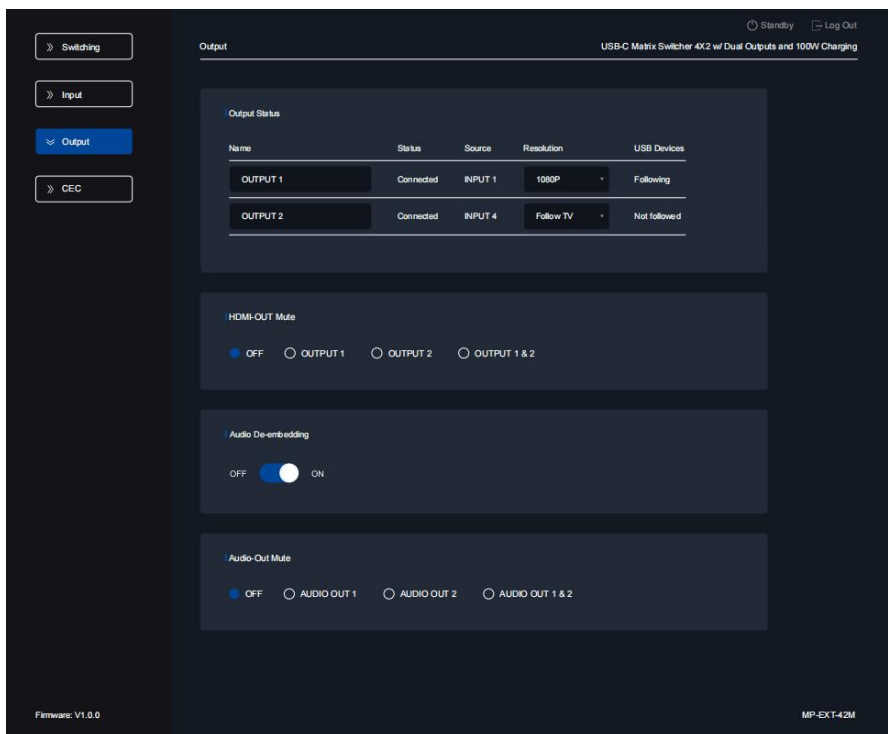
Here to set up the output.

Output status: Support to rename the output name, set up output resolution and checking the input routing and USB devices.

HDMI-OUT Mute: support to choose mute output image.

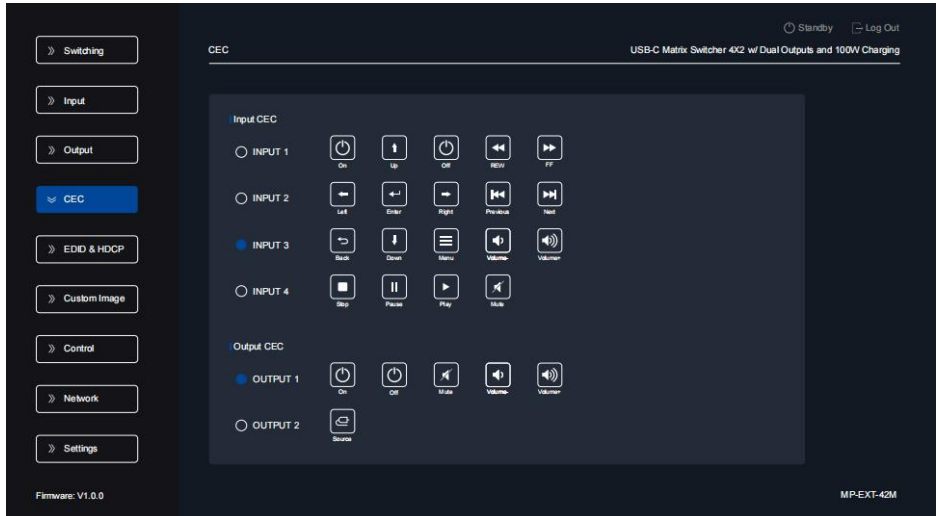
Audio De-embedding: To enable or disable output de-embedding audio.

Audio-Out Mute: to Mute output 1 and output 2 audio seperately or together.



5.5 CEC

CEC Consumer Electronics Control, this is a function for user to control third party device for example TV, Blu ray and so on.



Input CEC: Control input through press on the CEC buttons after choosing input.

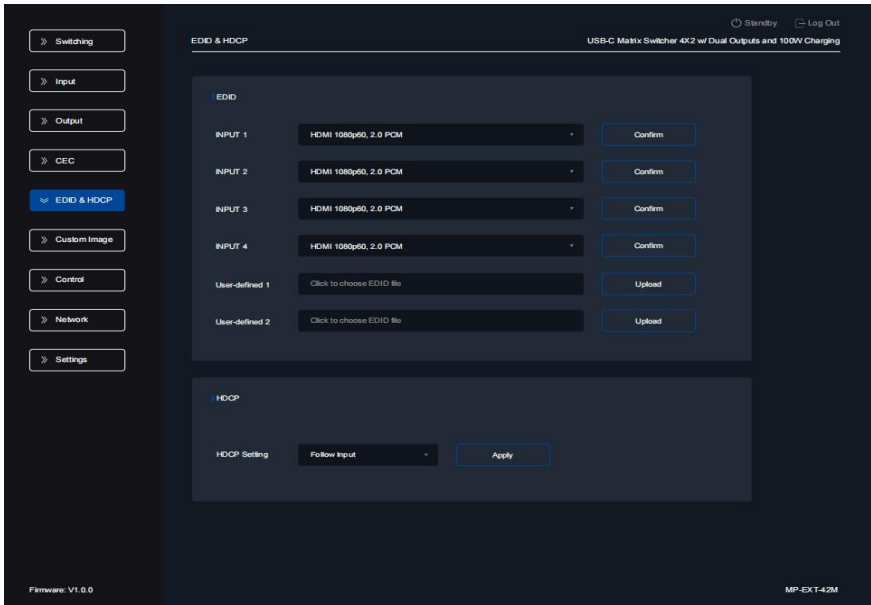
Output CEC: Control Output through press on the CEC buttons after choosing Output.

5.6 EDID and HDCP management

MP-EXT-42M supported multi predefined EDID and 2 User defined EDID.

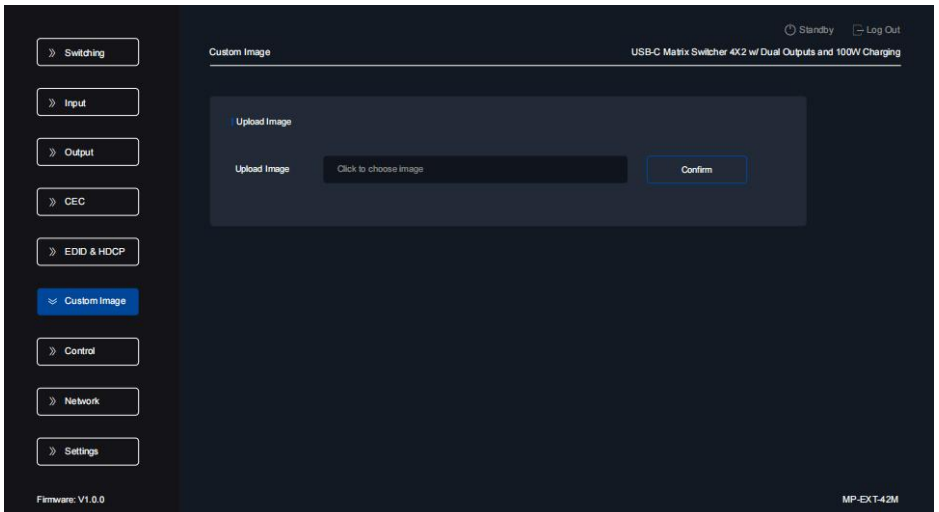
User-defined EDID: press the input area or press browser button on GUI to choose EDID file (.bin) from local storage of your control PC.

HDCP: set output HDCP mode, support Follow Input , follow sink, and HDCP passive.



5.7 Custom image (OSD)

MP-EXT-42M supports to upload user defined welcome image in this tab page. Click the text area or press the Browse button to choose file from local storage.



Cautious

- 1 The uploading image should within 20k pixels,
- 2 Custom image support “.jpg” and “.bmp” format;
- 3 If uploading pixels over the limitation, system will popup a window to caution.

5.8 Control

RS232: Set serial parameters for third party control, support following parameters:

Command format: ASCII(default) or HEX.

Baud rate: 2400, 4800, 9600(Default), 19200, 38400, 57600,115200.

Command endings: NULL / CR / LF / CR+LF.

IP2IR: Enable / disable IP2IR function

PIR: Enable / Disable PIR sensor, when enabled and connect a PIR, system support to enter standby mode accordingly.

Auto standby: to set Auto Standby delay after trigger Standby mode. Default set to 180s and support 30-1800s, when set to 0, means never enter into standby mode.

Control

USB-C Matrix Switcher 4x2 w/ Dual Outputs and 100W Charging

Standby Log Out

RS232

ASCII ☐ HEX ☒

Baud Rate: 9600

Command Ending: NULL

Command:

Send

IP2IR

IP2IR: Confirm

PIR Sensor

OFF ☐ ON ☒

Auto Standby

Auto Standby Delay: Confirm

Support range 30~1800s, set to 0 to disable Auto Standby

Firmware: V1.0.0 MP-EXT-4M

5.9 Network

The screenshot shows the 'Network' configuration page. On the left is a sidebar with navigation buttons: Switching, Input, Output, CEC, EDD & HDCP, Custom Image, Control, **Network** (highlighted), and Settings. The main content area is titled 'Network' and 'USB-C Matrix Switcher 4x2 w/ Dual Outputs and 100W Charging'. It includes a 'Standby' button and a 'Log Out' button. The 'IP Setting' section contains the following fields and controls:

- Mac Address: XXXXXX.XXXX.XXXX
- DHCP: ☒ DHCP, ☐ Static IP
- IP Address: 192.168.0.178
- Subnet Mask: 255.255.255.0
- Gateway: 192.168.0.1
- Confirm button

At the bottom left, it says 'Firmware: V1.0.0'. At the bottom right, it says 'MP-EXT-42M'.

Mac address: to show the only ID address of unit, can't be changed;

IP mode: DHCP(default) and Static

IP address, Subnet Mask, Gateway: Available when in Static IP mode.

5.10 System general settings

The screenshot shows the 'Settings' page. On the left is a sidebar with navigation buttons: Switching, Input, Output, CEC, EDD & HDCP, Custom Image, Control, Network, and **Settings** (highlighted). The main content area is titled 'Settings' and 'USB-C Matrix Switcher 4x2 w/ Dual Outputs and 100W Charging'. It includes a 'Standby' button and a 'Log Out' button. The settings are organized into sections:

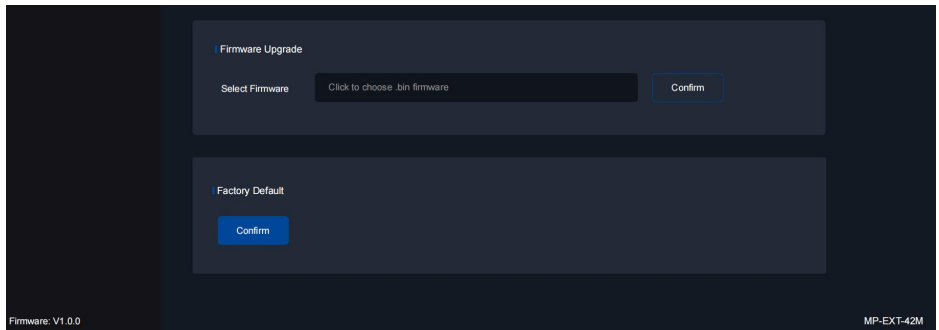
- Admin Credentials:** Username (Admin), Password, New Password, and a Send button.
- User Credentials:** Username (User) with a Confirm button, and Password with a Confirm button.
- USB Devices Mode:** ☒ manual, ☐ Follow OUTPUT 1, ☐ Follow OUTPUT 2.
- Front Panel Lock:** ON ☒ OFF ☐.

Admin credentials: to change admin password, need to confirm current password first for safety consideration, only available for admin.

User Credentials: change Guest user name and password. Guest can only operate basic functions.

USB Devices Mode: set host of USB devices, to follow output 1 or output 2.

Front Panel Lock: To enable or disable front panel buttons, if disabled, the front panel buttons will not working.



Firmware Upgrade: click the text area or press “Browse” button to choose firmware from control local storage.

Factory Default: press “confirm” button to reset unit to factory default.

Cautious: when upgrading firmware, please make sure power supply stable and waiting patiently till upgrading finished.

6. Firmware Upgrading

6.1 Serial Firmware Upgrading

MP-EXT-42M supports to upgrade firmware through RS232 serial port.

- 1, Connect unit and your control PC using Serial cable and check COM Port;
- 2, Open “stm32_upgrade” APP, choose connected COM port;
- 3, Set baudrate to 115200, then click “Open” ;
- 4, Click “Connect” to connect unit with PC, if connected, the button will turn to green;
- 5, Click “Openfile” to choose FW from local storage and then to click “upgrade” button.
- 6, Wait upgrade process to finish, when Upgrade success you can see “Success” and “rebooted” in the software Window and “Upgrade” button will turn to green.

7. System Diagram

