TEK MV41-USB 4×1 1080P Seamless Multiview Switcher User Manual

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Contents

Preface

Read this user manual carefully before using the product. Pictures shown in this manual are for reference only. Different product model specifications may vary.

This manual is only for operation instruction, please contact the local distributor for maintenance assistance. The functions described in this version were updated September 2024. In order to continue improving the product, we reserve the right to make function or parameter 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 A 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 performance 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
- Do not dismantle the housing or modify the module (electrical shock or burn hazard)
- Using supplies or parts not meeting the products' specifications may causedamage, deterioration, or malfunction
- Refer all servicing to qualified service personnel

- To prevent fire or shock hazard, do not expose the unit to rain or moisture, or install this product near water
- Do not put any heavy items on the product's power cable
- Do not remove the housing of the device, as opening or removing the housing may expose you to dangerous voltages or other hazards
- Install the device in a place with sufficient 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 use liquid or aerosol cleaners to clean this unit. Always unplug the power tothe 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 generalhousehold waste, please treat them as normal electrical wastes

Product Introduction

The MV41-USB 4×1 Multiviewer with USB 3.0 capture makes it easy to integrate multiple cameras into a video conferencing system. The MV41-USB provides seamless switching of four HDMI inputs and showing multiple sources simultaneously to the far-end. Systems that do not support full bandwidth USB 2.0 can take advantage of the MV41- USB for its support of H.264 UVC. One of the popular features of the MV41-USB allows the instructor and student cameras to be shown side-by-side.

Features

- Multiview with multiple configurations (Single View, Dual View with correct aspect (Not stretched), Quad View, Quad View with large Window, and PIP)
- Breakaway Audio Switching
- Line audio Input
- IR Controller
- RS232 and USB Control
- USB to RS232 pass through
- Output resolution 1080p (60) & 720p (60)

Package List

- HDMI 4×1 Quad Multi Viewer
- 1 – 5 V/ 2 A DC Power Adaptor
- 1 – IR Remote Controller
- 1 – 24" USB 3.0 Male cable
- 1 – 3 Pin captive connector
- 1 – Table mount kit
- 1 – User Manual

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

Operation Controls and Functions

Front Panel

1. **Line:** 3.5mm Audio Line Input for embedding audio sources (e.g. microphone mix)
2. **IR:** IR Remote Control receiver window
3. **PWR:** Power Indicator
4. **LEDs** 1-4: Input status indicator
5. **AUDIO:** Press to change the current audio input selection
6. **Switch:** Press to change the current video input switch selection
7. **MODE:** Press to select the current Multiview mode
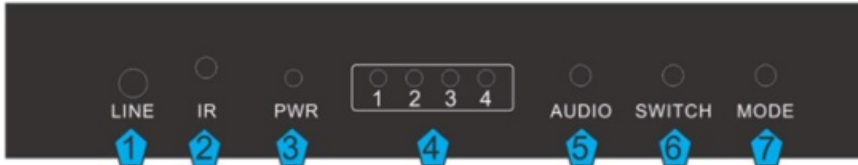
Rear Panel

1. **DC 5V:** Connect to 5V 2A power adapter
2. **HDMI OUT:** Connect to display or HDMI switcher
3. **HDMI Inputs** (4): Connect cameras or other HDMI devices
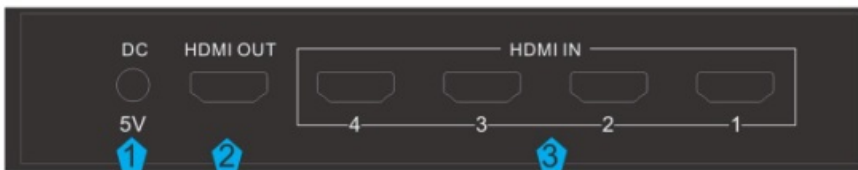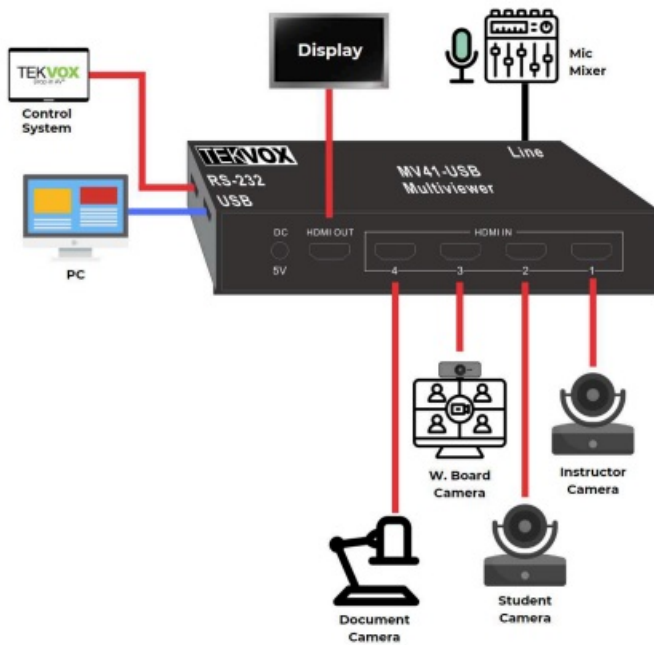

Side Panel

1. **RS-232 connector:** Control the unit from a third-party control system
2. **USB 3.0 Connector:** Connect to the USB port of a PC or laptop to stream the video and audio of the HDMI output, or to control the unit via USB
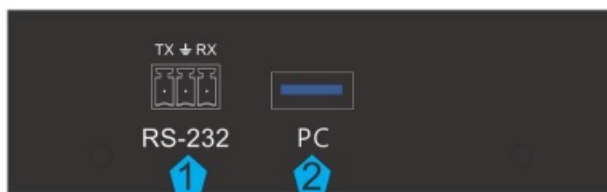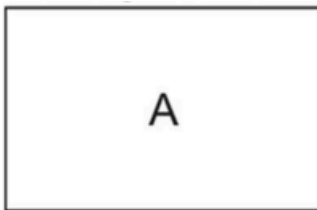

Connections
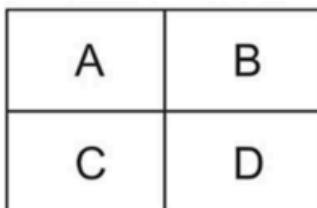
Multiview Modes

- Single View

- Dual View

- Quad View

- Quad Large

- PIP

1. **Single View**
2. **Dual View** with correct aspect ratio (Not stretched)
3. **Quad View**
4. **Quad Large** with correct aspect ratio (Not stretched)
5. **PIP** (Picture-in-Picture)

Boxes A-D are the video windows. In Quad View mode, the windows are always fixed with A = HDMI 1, B = HDMI 2. C = HDMI 3, and D = HDMI 4
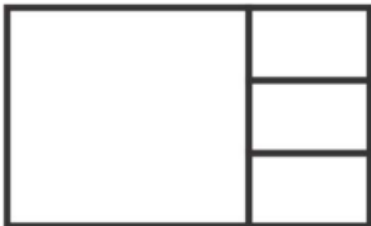
In PIP Mode both A and B can be assigned an HDMI input with B able to be positioned in all four corners.

IR Remote

Quad View window

The Quad View large window can be used to toggle between Quad View large and Dual View.

Pressing PIP displays the PIP widow, and if pressed again can be used to cycle through the PIP positions in the following order: Bottom Right, Bottom Left, Top Left and Top Right.

Single View

The play buttons can be used to select the main input for the Quad View Large, PIP, and Single View multiview modes.

The audio buttons select which HDMI input audio channel to embed with the HDMI output.

Table Mount Kit

The MV41-USB can easily be mounted to a rack shelf or wall using the supplied table mount kit. Attach these mounts to the side of the unit, then attach the whole assembly to the table or wall.

RS232 Control

The RS232 port (3-pin terminal) on the side of the unit allows for control of the unit using 3rd party controllers. All commands are numeric ASCII text, and the same command is used for feedback.

Baud rate: 9600
Data bit: 8
Stop bit: 1
Parity bit: None

Notes: All commands must be terminated with "CR"
All feedbacks are terminated with "CR" "LF"

RS232 Commands

Command	Description	Command Example and Feedback
Audio Input Select Selects the HDMI audio input to be embedded in the HDMI output for all modes		
1110 <CR>	Audio 1 Select (Factory Default)	1110 <CR> <LF>
1111	Audio 2 Select	1111
1112	Audio 3 Select	1112
1113	Audio 4 Select	1113
Dual View Right Window HDMI Input Selects the right (B) window for the Dual View mode		
1114	Dual View B Window = HDMI 2 (Factory Default)	1114
1115	Dual View B Window = HDMI 3	1115
1116	Dual View B Window = HDMI 4	1116
Quad Large HDMI Input Selects the source layout for the Quad Large mode		
1117	Window A = HDMI 1 Small Windows: B = HDMI 2 C = HDMI 3 D = HDMI 4 (Factory Default)	1117
1118	Window A = HDMI 2 Small Windows: B = HDMI 1 C = HDMI 3 D = HDMI 4	1118
1119	Window A = HDMI 3 Small Windows: B = HDMI 1 C = HDMI 2 D = HDMI 4	1119
1120	Window A = HDMI 4 Small Windows: B = HDMI 1 C = HDMI 2 D = HDMI 3	1120
PIP Small Window Sets the HDMI input of the small (B) window in PIP mode		
1121	PIP Window B = HDMI 1	1121
1122	PIP Window B = HDMI 2 (Factory Default)	1122

1123	PIP Window B = HDMI 3	1123
1124	PIP Window B = HDMI 4	1124
PIP Position		
1125	PIP Top Left	1125
1126	PIP Top Right	1126
1127	PIP Bottom Left	1127
1128	PIP Bottom Right (Factory Default)	1128
System Operation		
1129 <CR>	On-Screen Display (OSD) Off (Factory Default)	1129
1130	OSD On	1130
1131	Border Off (Factory Default)	1131
1132	Border On	1132
1132	Border On	1132
1133	Output Resolution 720p@60	1133
1134	Output Resolution 1080p@60 (Factory Default)	1134
1135	Get Status During power on of the MV41, the Status is sent out the RS232 and USB ports	Mode [1101 – 1105] HDMI Input [1106 – 1109] Audio [1110 – 1113] Dual View Video State [1114 – 1116] Quad Large Video State [1117 – 1120] PIP Window [1121 – 1124] PIP Position [1125 – 1128] OSD [1129 – 1130] Border [1131 – 1132] Resolution [1133 – 1134]
1136	Factory Default	After reboot status is sent out
12xx xx = 00-99	Special Commands	1200 – 1299

Status sends out the current state of each command. The Status is also sent out when the unit is powered on.
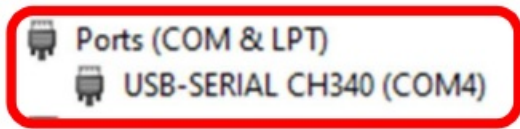
Special commands are used to send feedback commands between USB and RS232 or RS232 to USB. These commands can be used to control devices using a 3rd party controller.

The settings made in the MV41 are kept in flash memory and recalled during power up.

USB Control

USB commands are the same as the RS232 commands.
Control of USB operates as a COM port and is shown in Device Manager as a USB serial device.

Ports (COM & LPT)
USB-SERIAL CH340 (COM4)

Specifications

Input	4 HDMI In (19-pin, Female) 1 Stereo In (3.5mm mini jack, Line Level)
Output	HDMI (19-pin, Female) USB 3.0 (Type-A, Female) (supports USB 2.0 H.264 UVC)
Control Ports	RS232 (3-pin terminal block)
Input Resolution	720 x 480 (60p), 720 x 576 (1p), 1280 x 720p (1p), 1280 x 720p(60p), 1920 x 1080 (1i), 1920 x 1080 (60i), 1920 x 1080 (24p) , 1920 x 1080 (25p), 1920 x 1080 (30p), 1920 x 1080 (1p), 1920 x 1080 (60p)
Output Resolution	720p @ 60Hz (default) / 1080p @ 60Hz
Compliances	**HDMI**: 1.4 **HDCP**: Up to 1.4, Auto
EDID	Auto / 720p @ 60Hz Default
Power Supply	**Input**: 100 ~ 240 VAC, 50/60Hz **Output**: DC 5V, 2A
Maximum Power Consumption	5W
Operating Temperature	23 ~ 131°F (-5 ~ 55°C)
Storage Temperature	-13 ~ 158°F (-25 ~ 70°C)
Relative Humidity	10 ~ 90%, non-condensing
Product Dimensions	6.69" (170mm) x 0.33" (8.4mm) x 0.56" (14.2mm)
Product Weight	0.82 lbs. (370g)

Specifications are subject to change without notice.

Customer Support

www.tekvox.com

Documents / Resources

	TEK TEK MV41-USB 4x1 1080P Seamless Multiview Switcher [pdf] User Manual 79079-USB, TEK MV41-USB 4x1 1080P Seamless Multiview Switcher, 4x1 1080P Seamless Multiview Switcher, Seamless Multiview Switcher, Multiview Switcher, Switcher

References

- **User Manual**