mvp100

INSTRUCTION MANUAL

ver. 1.3.0119

Table of contents

Disclaimer of Product and Services

This manual described herein, in whole or in part, may not be reproduced, translated, or reduced to any machine-readable form without prior written approval. Reckeen provides no warranty with regard to this manual or other information contained herein and hereby expressly disclaims any implied warranties or merchantability or fitness for any particular purpose with regard to this manual, the software, or such other information. In no event shall Reckeen be liable for any incidental, consequential, or special damages, whether based on tort, contract, or otherwise, arising out of or in connection with this manual or other information contained herein or the use thereof. In the manual, the ™ or ® marks are not specified. Reckeen reserves the right to make any modification to this manual or the information contained herein at any time without notice. The information provided in this manual is intended only as guide. All the time, Reckeen will try to give correct, complete and relevant information. However, Reckeen can't exclude that some of the information contained in this manual, from time to time, may not be correct or may be incomplete. This manual may contain omissions, typographical errors or incorrect information. Reckeen always recommends that you carefully check the information given in this manual for accuracy before making any purchase decision or using the product. Reckeen is not responsible for any errors or omissions , or for any subsequent loss or damage resulting from the use the information contained within this manual. For further guidance on the content of this manual or on the product contact your local Reckeen Office or dealer.

Reckeen is not liable and will not compensate for any lost recordings or streamings made to your Reckeen MVP 100 , external recording media, or recording devices or any relevant losses, including when recordings are not made due to reasons including your MVP 100 failure, or when the contents of a recording are lost or damaged as a result of your Reckeen MVP 100 failure or repair undertaken to your Reckeen MVP 100. Reckeen will not restore, recover, or replicate the recorded or streamed contents made to your Reckeen MVP 100, external recording media, or recording devices under any circumstances.

FCC NOTICE TO USERS

NOTE: This equipment 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 when the 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 this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Warnings and Precautions

1. Read carefully all of these warnings and save them for later reference.
2. Follow all warnings and instructions marked on this unit.
3. Unplug this unit from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.
4. Do not place this unit on an unstable cart, stand, or table. The unit may fall, causing serious damage.
5. Do not use this unit in or near water.
6. Slots and openings on the cabinet top, back, and bottom are provided for ventilation. To ensure safe and reliable operation of this unit, and to protect it from overheating, do not block or cover these openings. Do not place this unit on a bed, sofa, rug, or similar surface, as the ventilation openings on the bottom of the cabinet will be blocked. This unit should never be placed near or over a heat register or radiator. This unit should not be placed in a built-in installation unless proper ventilation is provided.
7. This product should only be operated from the type of power source indicated on the marking label of the AC adapter. If you are not sure of the type of power available, consult your dealer or your local power company.
8. Do not allow anything to rest on the power cord. Do not locate this unit where the power cord will be walked on, rolled over, or otherwise stressed.
9. If an extension cord must be used with this unit, make sure that the total of the ampere ratings on the products plugged into the extension cord do not exceed the extension cord's rating.
10. Make sure that the total amperes of all the units that are plugged into a single wall outlet do not exceed 15 amperes.
11. Never push objects of any kind into this unit through the cabinet ventilation slots, as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock. Never spill liquid of any kind onto or into this unit.
12. Except as specifically explained elsewhere in this manual, do not attempt to service this product yourself. Opening or removing covers that are marked "Do Not Remove" may expose you to dangerous voltage points or other risks, and will void your warranty. Refer all service issues to qualified service personnel.
13. Unplug this product from the wall outlet and refer to qualified service personnel under the following conditions:
    - When the power cord is damaged or frayed;
    - When a liquid has spilled into the unit;
    - When the product has been exposed to rain or water;
    - When the product does not operate normally under normal operating conditions. Adjust only those controls that are covered by the operating instructions in this manual; improper adjustment of other controls may result in damage to the unit and may often require extensive work by a qualified technician to restore the unit to normal operation;
    - When the product has been dropped or the cabinet has been damaged;
    - When the product exhibits a distinct change in performance, indicating a need for service.

Warranty

For a period of one year from the original date of purchase of the product, Reckeen equipment is guaranteed against any manufacturing defects. The original purchase receipt or invoice or other documentary evidence is required. To obtain warranty service, you must deliver the product, in either its original packaging or packaging affording an equal degree of protection . You cover all mail , delivery , transportation and insurance costs. It is your responsibility to backup any data, software or other materials you may have stored or preserved on your unit. It is likely that such data, software, or other materials will be lost or reformatted during service and Reckeen will not be responsible for any such damage or loss. Our warranty doesn't cover damage caused by accidents or unauthorized modifications, installing any other software and repairs, misuse, sand, grit or water. All other claims of any nature are not covered by this warranty. This Warranty is valid only in the country of purchase. REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE CONSUMER. RECKEEN SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY ON THIS PRODUCT. EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ON THIS PRODUCT IS LIMITED IN DURATION TO THE DURATION OF THIS WARRANTY . Accessories ,such as the battery or the cable, are excluded from the warranty. These terms do not affect your statutory rights.

DISPOSAL ELECTRICAL AND ELECTRONIC EQUIPMENT

SYMBOL FOR THE MARKING OF ELECTRICAL AND ELECTRONIC EQUIPMENT INDICATING SEPARATE COLLECTION: For Customers the countries within the EEA . EEA: European Economic Area, which comprises the EU member States plus Norway, Iceland and Liechtenstein.

WEEE Directive

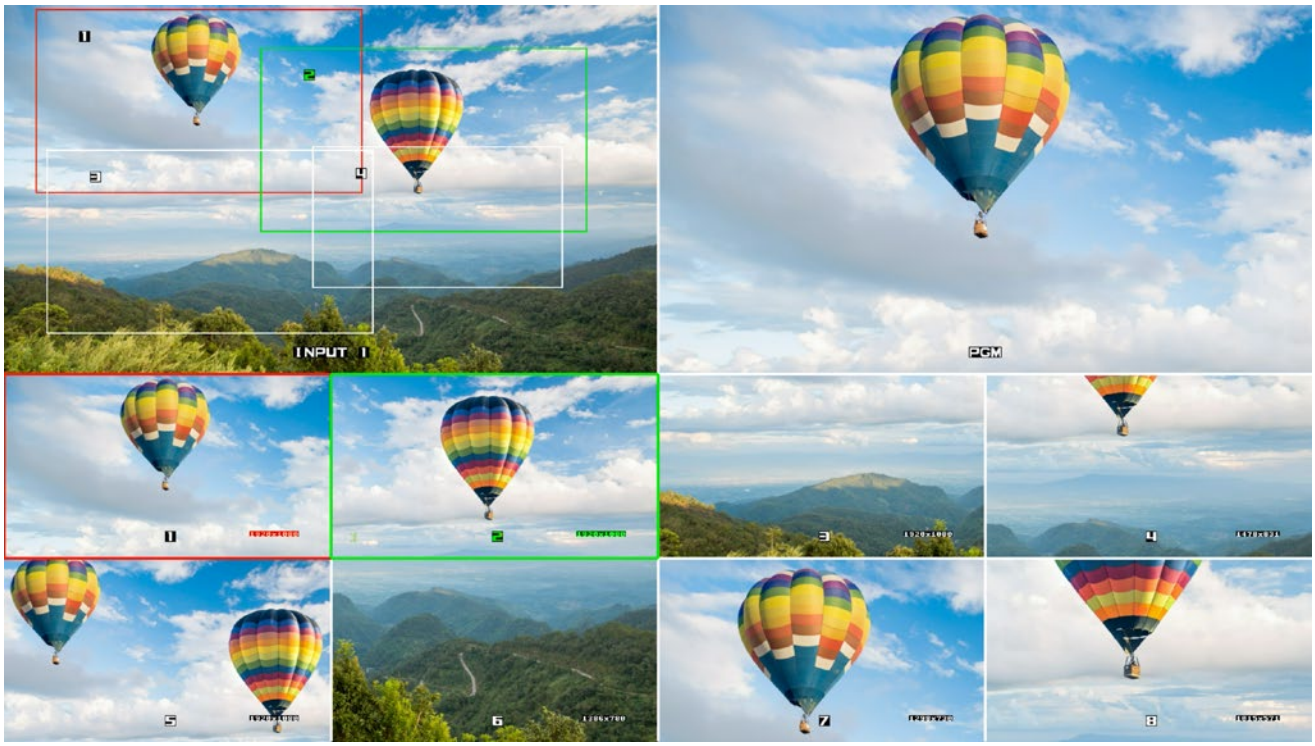
The symbol – consists of the crossed-out wheeled bin, as shown above. The symbol is indicating that electrical and electronic equipment should not be disposed of as unsorted municipal waste, but segregated for separate collection. For more information about recycling of the product, please contact Reckeen office, the waste authority, the approved WEEE scheme or the dealer/distributor where you purchased the product.

CE Marking is the symbol as shown on the left of this page. The letters "CE" are the abbreviation of French phrase "Conformité Européene" which literally means "European Conformity". The term initially used was "EC Mark" and it was officially replaced by "CE Marking" in the Directive 93/68/EEC in 1993. "CE Marking" is now used in all EU official documents.

2

Introduction

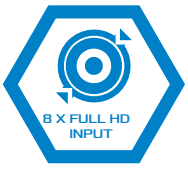
MVP-100 is live production switcher designed for both broadcasters and AV professionals. It offers 8 virtual HD frames selected from two 4k inputs or standard FullHD inputs. Thanks to the existence of the program output and the integrated production keyboard, the user can create video material live. A simple interface for switching the frame view creates this user-friendly device. The frame view can be switched by pressing only one button on the production mixer or automatically, thanks to the built-in transition effects. The device can be a static video scaler or perform animations between defined frames. At any time, you can use Joystick to change the position and the size of the frame. Thanks to the GPIO connector, this MVP device can be connected to an external device that triggers the animation automatics. There is no need to focus on the sound, because the device supports built-in audio on each input and thanks to the mix or follow options, decide on the selected sound transmission.



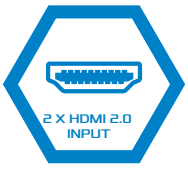
Equipped with high end broadcast features, MVP-100 offers clean switching whether you're using professional or consumer cameras. With built multiview output you can see all of your sources, preview and program on a single screen, aux out, 2 still stores, and more!

The device allows you to save all defined settings in 8 memory banks. At any time, the user can restore the settings and start the video production without the need for reconfiguration. MVP-100 is perfect for live production, TV studio, live coverage of field events! Just plug in your cameras and start switching live!

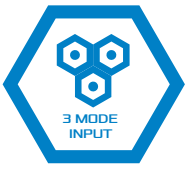
2x HDMI 2.0 or 2x SDI 12G, every single 4k input can be replaced by 4 x 3G SDI input. (QUAD)



We support 8 SDI input with 3G format. Every 4 x 3G SDI input can be replaced by single 4k input.

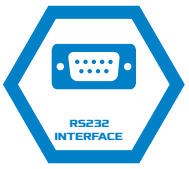


You can selected form 8 sdi input up to 2 as HDMI with supports up to 4k format.



2 x 4k / 1 x 4k and 4 x 3G input / 8 x 3G input

Trigger in MVP-100, that is windows' motion control (a virtual camera). You can program up to 8 windows, each with a different type of motion (single, loop, ping-pong, zoom etc.).



Communications port for controlling Reckeen External Control Panel MVPkey 100 with Joystick and T-bar.

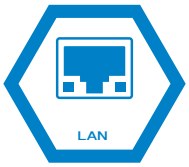
We will support 1080i, 1080p, 2160p and 50 or 60Fps as well, with auto detect functions.

You can mix 4k input with 4 x 3G SDI input.

High quality 4k scaler on each of the 4k inputs.

High quality Full HD scalers on each of the Full HD inputs.

Embedded stereo on each SDI and HDMI input.

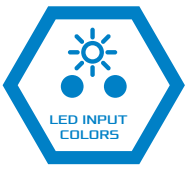


Gigabit Ethernet LAN, for update firmware's or communications with the MVP100 devices.

Any one can be set as PGM, PVW or AUX and Clean Feed

One is MultiViewer, the second HDMI is always PGM

There are 3 layouts, predefined without config.
- Animations previews
- Standard Switcher
- Modified switcher



The LEDs' colors indicating current signal format on inputs.

Embedded stereo on each SDI and HDMI output.

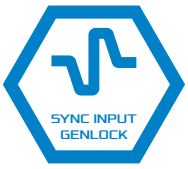
GPIO (General Purpose Input/Output) is an interface used for communication between MVP-100 system components and various peripheral devices.

Support T-Bar/Auto – effects as dissolve, effects from list selected from menu.

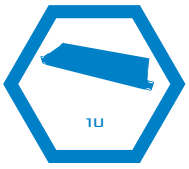
Fade to black

It allows the device's configuration and saving presets in the device's internal memory.

OSD menu to board configurations on MV output.



Allows the specification of the reference signal for output channels synchronization.



Area in a Rack type housing 1U+

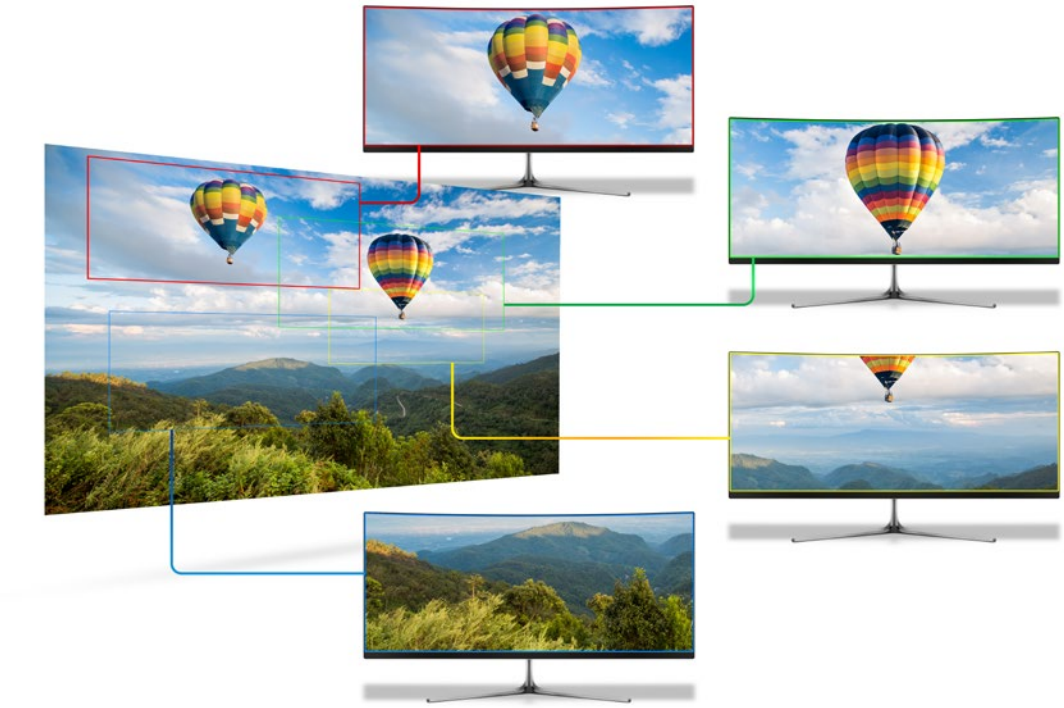
12V power supply


CAM 1
CAM 2
HDMI or SDI 12G
HDMI or SDI 12G
CAM 1
FULL HD
CAM 2
FULL HD
CAM 3
FULL HD
CAM 4
FULL HD
SDI 3G
SDI 3G
SDI 3G
SDI 3G
VIDEO STREAMER
CAM 5
FULL HD
CAM 6
FULL HD
CAM 7
FULL HD
CAM 8
FULL HD
SDI 3G
SDI 3G
SDI 3G
SDI 3G
PGM
HDMI VIDEO
MULTIVIEWER
VIRTUAL CAMERA WINDOW
OPERATED BY JOYSTICK
VIDEO RECORDER
8x SDI VIDEO
GENLOCK
RS422
LAN
AUDIO
LINK
GPIO
CONTROL PANEL
TALLY

3

System description

MVP-100 is an advanced video converter which allows conversion of UHD input signals into 4 different streams with resolution up to FullHD. Each device has two UHD inputs which are working simultaneously.



You can define 4 output windows on every UHD source signal. The resolution of a window in channel 1 can be up to 3860x2160, while channels 2, 3 and 4 support resolution of windows up to 1920x1080 pixels. Every window can be animated. Motion is made by defining the Start and End positions, along with their transition mode (single, loop, ping-pong). During the motion, every window can change its size. This feature simulates the digital zoom.

FUNCTIONS AND FEATURES OF MVP-100

MVP-100 is an advanced video converter that allows processing and conversion of UHD signals (3840x2160), for example: 12G SDI or HDMI 2.0 into four or eight different high-quality streams, at resolutions up to FullHD. MVP-100 has got two independent conversion channels!

This enables simultaneous and parallel processing of two UHD signal sources – 3840x2160, the input signals are converted into eight 3G SDI outputs, which can be additionally synchronized to a Genlock input.

This solution is ideal for professionals who deal with production and broadcasting of video materials using a variety of sources and signal types. It is perfect to apply both on the set and during the life coverage of events.

In addition, MVP-100 converter is really easy to use. The small size of the device, its user-friendly interface.

HOW DOES MVP-100 OPERATE?

MVP-100 is able to simultaneously convert signals from two video inputs with resolutions up to UHD (3840x2160). It supports a variety of video formats and enables the connection of signal sources in

the form of SDI and HDMI, including 12G SDI and HDMI 2.0 technologies.

The output signals are as many as 8 channels. They are created for each channel by indicating an active area from the area of the device's input signals.

The definition of the area, which will determine the output content, is nothing more than a simple positioning of a rectangle in the MultiViewer preview for a given channel, and that, of course, against the background of the device's input signal. Each of the rectangles is marked with a white frame, but if it is selected in the program row it is red or in the preview, then it is green. For one of the channels you can scale the signal from full 4K resolution to FullHD, and there is up and down scaling (zoom) possible for all other outputs. The output area (position of each rectangle) may be a function of a variable, which means in constant motion. For each rectangle, there are simple motions available, you just need to select one of the available modes. The scope of all the settings and the end positions are defined in the application in a user friendly interface.

The areas defined by the rectangles create 8 SDI outputs (2 x 4 or 1 x 8). Multiviewer (HDMI) output is used for preview and for device's configuration. The device also has an HDMI output Program that shows one of the frames or the transition effect between them.

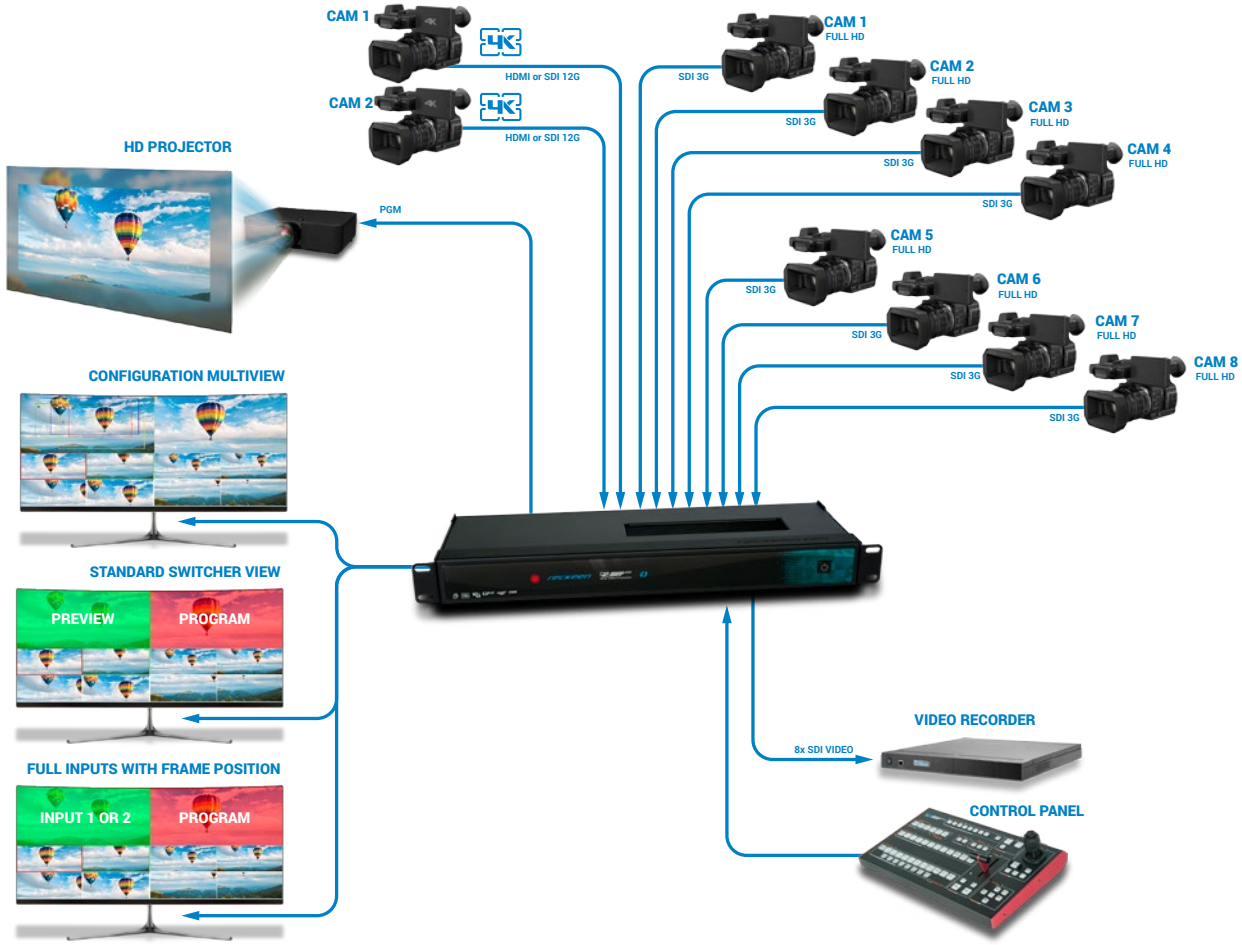
MVP-100 means multiple applications and uses, as this device allows for a variety of effects that will satisfy every professional engaged in production, broadcasting and also events' live coverage with the use of audiovisual materials!

4

Capabilities, functionalities and applications

MVP-100 – is a bridge connecting 4K technologies with current video systems solutions. This device has a very wide range of applications in virtually every area where the high quality image preview is required, – like sporting events, industrial automation, visual effects used during all kinds of live events or postproduction.

IMAGE PRODUCTION AND POSTPRODUCTION



MVP-100's capabilities are perfect for, among others, video image postproduction. The material is recorded with one or two video cameras at 4K resolution.

With MVP-100, you can not only change the composition, but also the shots. The end result will resemble the usage of several cameras, and, with your mixer's help, the transitions between them will be smooth and natural. At the same time, this solution allows for the material to be realized by a single camera operator – thus allowing the reduction of production costs. And the resulting material will still be of a high quality and FullHD resolution, as if it was realized by several operators.

CREATING A VIDEO WALL

Video walls are a modern and increasingly popular solution used in entertainment, advertising, marketing, and special events. With its capability to separate the signal from 4K inputs, MVP-100 converter is an excellent tool for creating a video wall by multiplying the signal from one or two 4K sources.

And a video wall created with two MVP-100 devices attains a resolution of 8K!

THE HIGHEST QUALITY IN SECURITY SYSTEMS

MVP-100 is an invaluable tool in creating a top-notch security systems. It allows you to get eight 3G HD outputs from a single 4K camera.

As MVP-100 processes the signal in real time, you obtain the effect of 8 high-quality mobile video cameras – but without their actual movement.

This way, the converter provides both new opportunities and the possibilities to cut down the costs by reducing the number of actual video cameras and cables, while simultaneously increasing precision and quality in capturing all the important details.

TRIGGER – CONNECTING A DEVICE TRIGGERING A SPECIFIC MVP-100

Thanks to the GPIO connector, you can connect to your converter the external devices that automatically trigger a specific MVP-100 Multi-camera unit process.

There are 8 inputs assigned for each of the windows, which means you also have 8 outputs at your disposal. Such functionality has a huge number of applications for various industries and types of recorded material.

For instance - in safety systems: when a person comes to a specific location, a signal can direct a camera to the specified area. Similarly, for example, in the amusement park - it may be used to automatically record ‚an adventure' at the most important attractions as a souvenir for the participants. During a football match, the camera can automatically zoom to the goal, when a ball (or a player) is in the vicinity.

And during the fashion show, in a specific place of the catwalk a full figure of a model can be shown, from top to bottom, revealing all the details of presented creations. (picture below)

There are endless possibilities!

JOYSTICK – ADDITIONAL POSSIBILITIES OF CONTROLLING YOUR VIRTUAL CAMERA

This functionality additionally significantly increases the utilization of MVP-100 Multi-camera unit converter's capabilities. A joystick in the external Reckeen MVP Control panel allows the operator to control the virtual camera manually within the selected window. Thus, in each of the eight virtual camera windows, both the software settings - for automatic control, as well as the manual control - using a joystick, can be used.

One of the effects possible to achieve in this manner is a dynamic shooting with keeping track of a chosen object or an important area. With the joystick, you can quickly and dynamically react to the occurring changes and capture all the relevant details.

All the position changes are shown in a graphic form at the MultiViewer outputs, which makes using the

joystick function very simple here. Reckeen MVP Control panel allows you to control multiple MVP-100 functions without having to use the control software on your computer. Both in the case of operators' preferences and in many fields of application, it will undoubtedly be appreciated by the users due to the speed and ease of use.

With such functionalities, MVP-100 Multi-camera unit with a single operator can act as almost an entire film studio. Shooting, for example, a concert may gain more dynamics and individual character. (picture below)

Menu Control

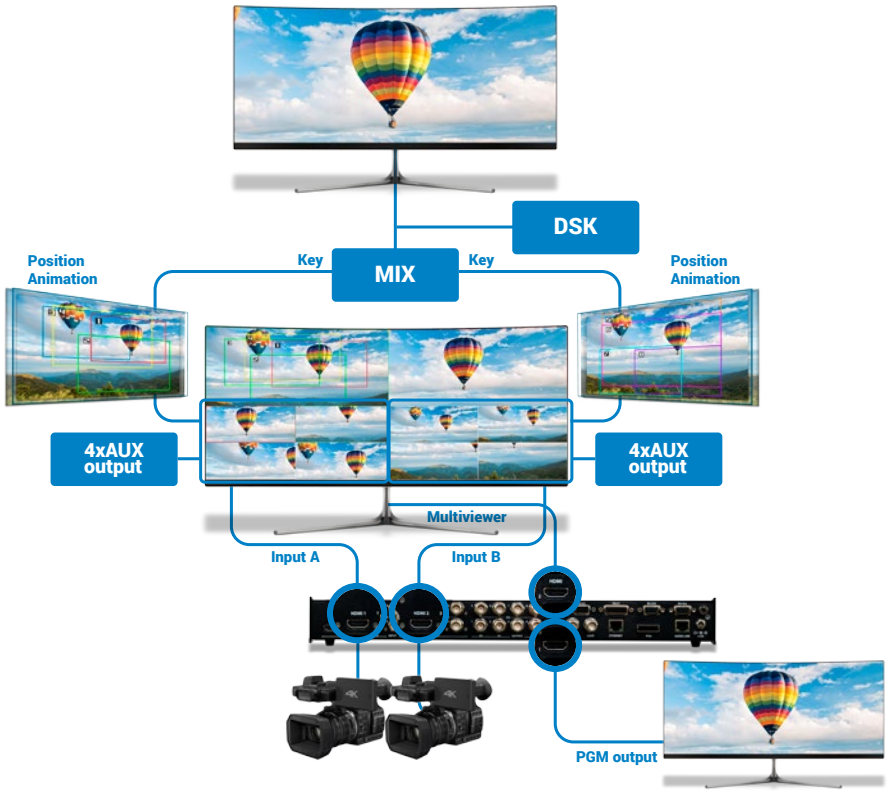
5

Press the MENU button to enter the System Configuration Menu. Press the UP, DOWN, LEFT, and RIGHT arrow buttons to navigate the menu options and to change values. Use the OK button to save and confirm any setting that has been amended. Pressing the MENU button again will exit to the previous option or close the menu view.

Inputs

6

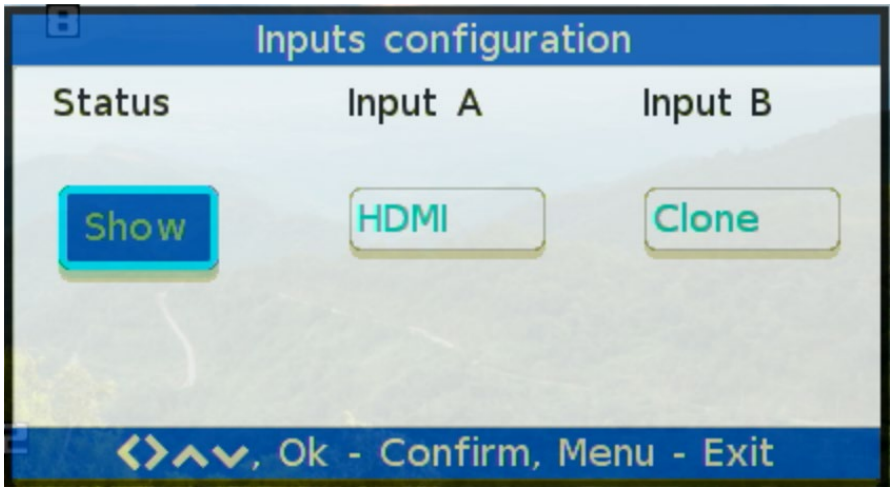
MVP-100 is a small and very compact solution with supporting up to two independent channels A and B.



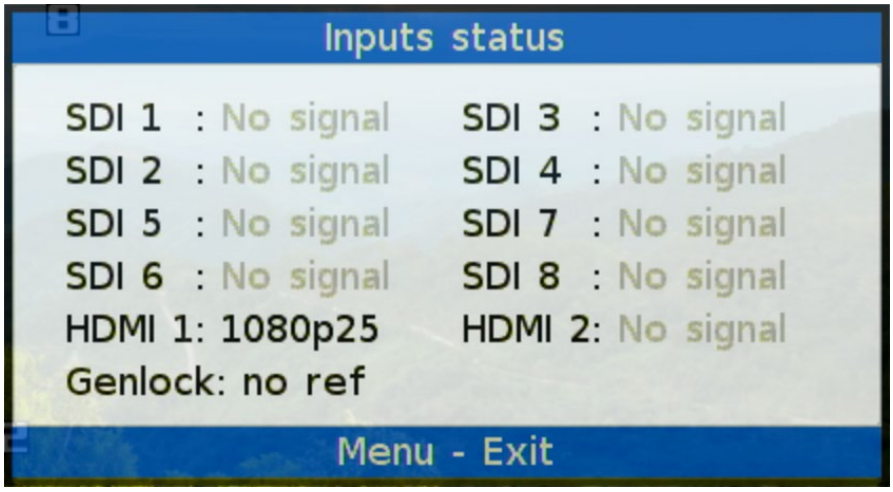
The user has a possibility to connect the signal in 4 ways to each channel. After pressing the MENU button on the Reckeen MVP 100 KEY, on the Multiviewer the menu will be displayed.

Press the MENU button and press the left arrow to navigate through the menu options until the “INPUTS” option is selected with a blue frame. Press OK to go to the next options.

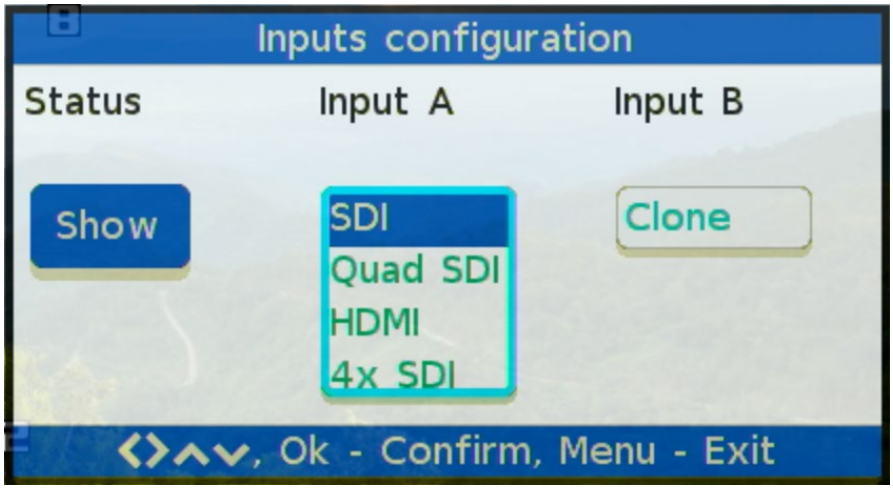
The first item in the menu is status. Press OK to go to the next options.



After opening this option, the user will check the input format and the genlock status.



For the Input A or B, you can choose one the options.



HDMI

HDMI port in standard 2.0 mostly used in cameras which can transport up to 3840 x 2160 resolution in frame rate 60 progressive.

SDI 3G/6G/12G signal

The second way is to use one coaxial cable for two inputs with BNC connector as SDI digital interface standard with supporting 3G/6G/12G signal.

QUAD SDI

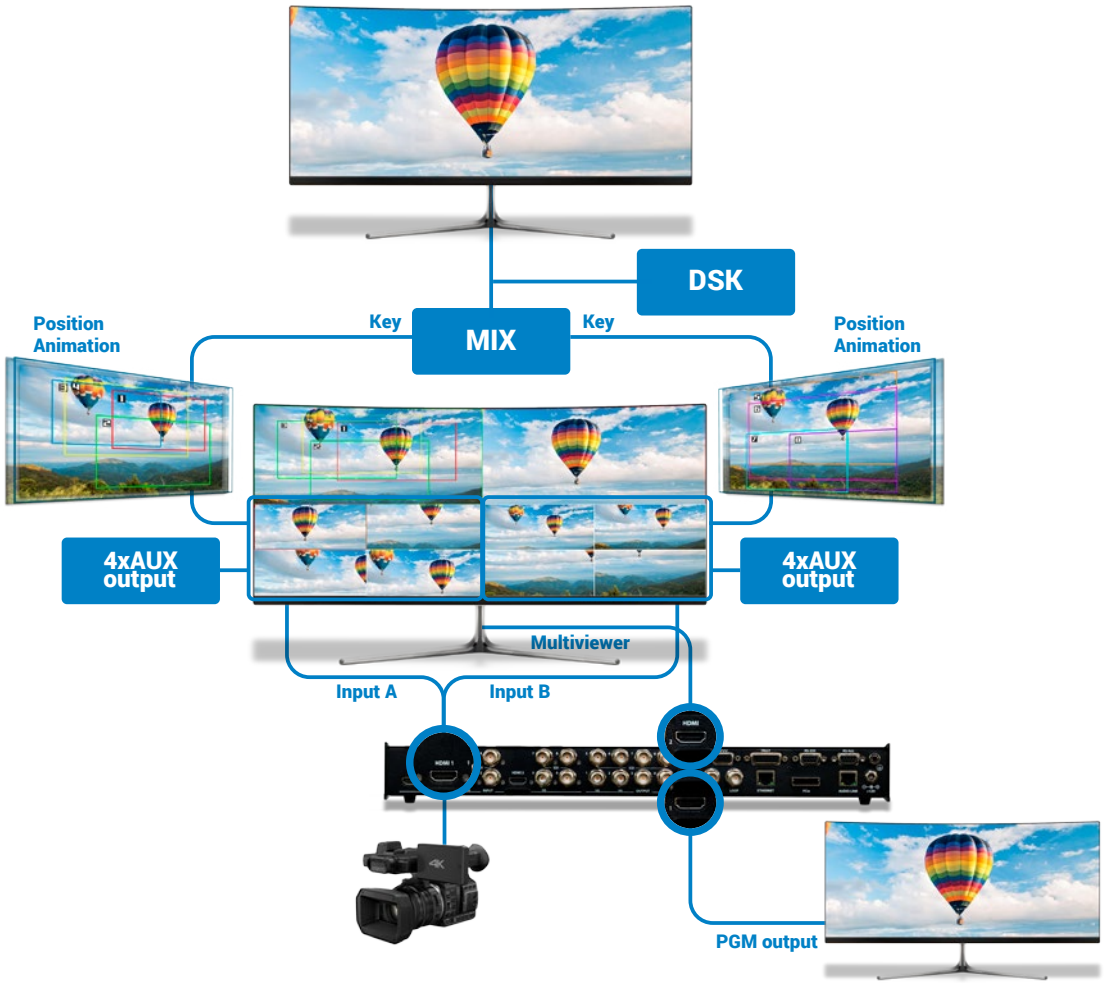
Some of the professional equipment, for a transport 4k signal, uses separate 4 coaxial cables with BNC connector. This method is called as Quad SDI. Each of them transports 3G signal.

SDI 3G

One of the possibilities is to connect 4 independent SDI signals at a resolution of up to 3G for each channel. At this time, it will not be possible to set virtual frames for each signal from the camera.Each full screen image will be available by pressing the button available on the MVP control panel.

CLONE

Clone is a function that gives you the ability to set exactly the same content on your channel as on the second input channel. For example, if you connect the 4k signal to channel A and set clone function on channel B, you can expect not only 4 Virtual frames but up to 8 with full animations.

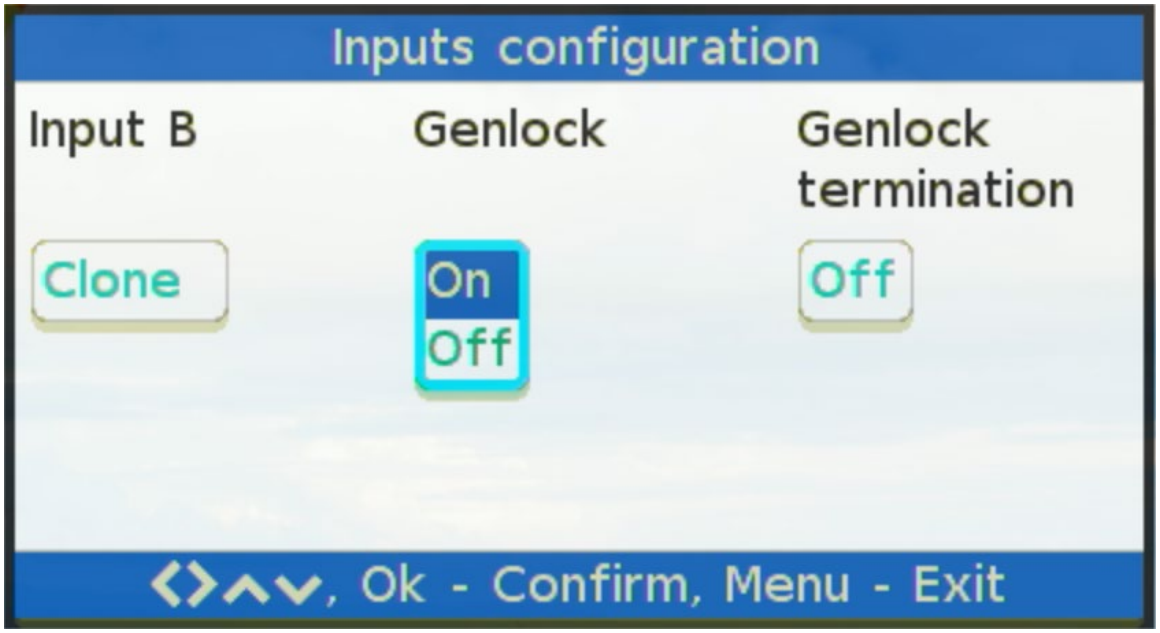


GenLock

7

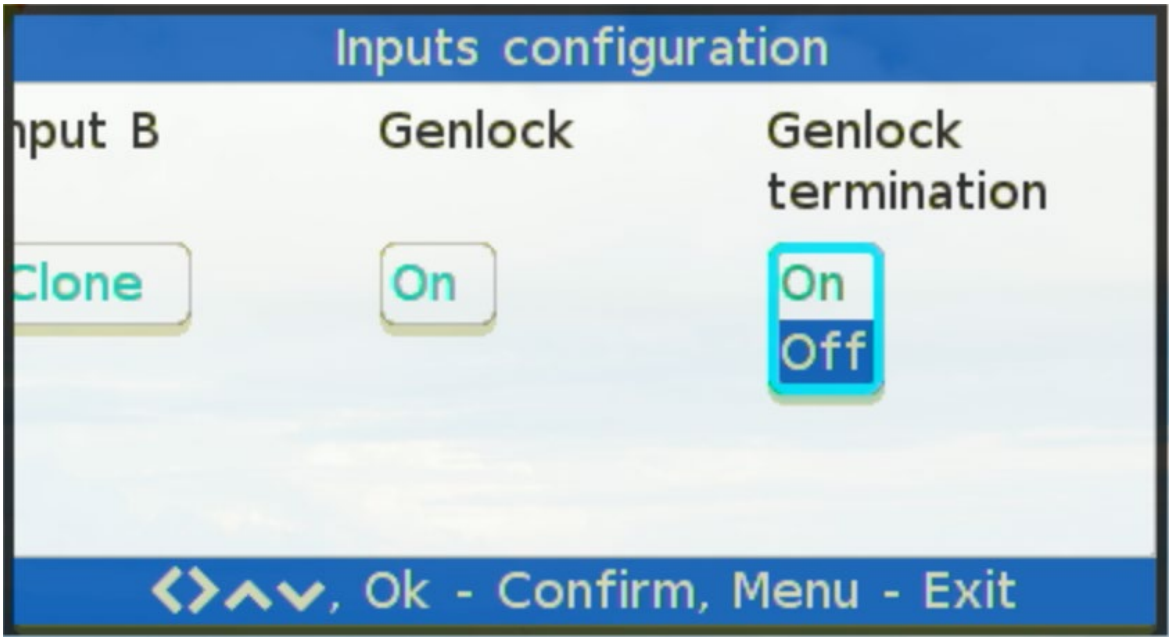
GenLock

The user can turn on or off genlock function which allows the specification of the reference signal for output channels synchronization.



GenLock termination

The user can turn on or off genlock 75 Ohm termination.



Input signal detection

8

The device can detect the signal and display the right color of the diode on the front panel of the device. There are two types of diode lighting: pulse means that this connector is selected in the user interface and might be used as an input and stable means that the signal is detected while connecting to the device.

Input signal detection:

- White - means that this connector is selected in the user interface and is ready to connection.
- Purple - signal detected with resolution 3840x2160 progressive 50/59,94/60
- Green - signal detected with resolution 3840x2160 progressive 25/29,97/30
- Blue - signal detected with resolution 1920x1080 progressive
- Yellow - signal detected with resolution 1920x1080 interlaced
- Red - this signal is not supported

9

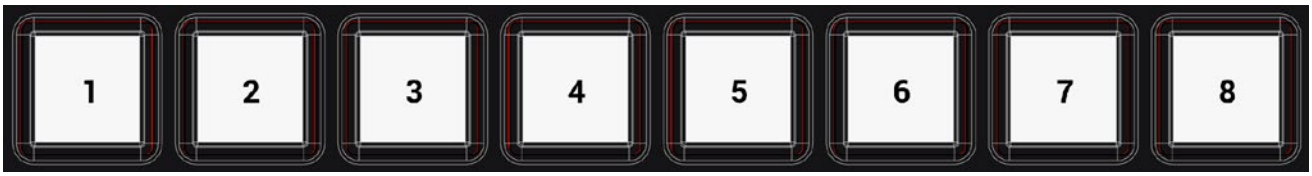
Program and Preview rows

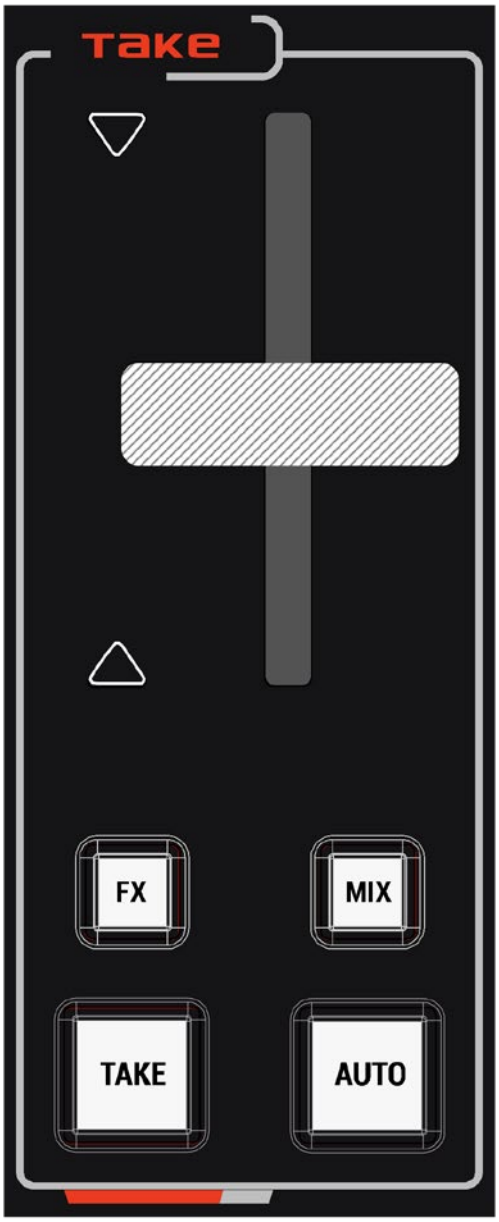
The Program row of buttons is the active channel, this is the live output. The active channel will appear as the Program Output. You can switch or CUT from one video source to another directly on the Program row. You will see the multi-view Program output change as you press different keys along this top row of buttons.

The Preview row is the accessory channel; this channel will appear in the Preview window. The Preview row selection decides which virtual input is controlled by the joystick. Also which one will be transitioned next when using any of the transition controls.

Virtual video Aux outputs presented on Preview or Program row.

8 virtual HD sources which are extracted from 4k Inputs A or B

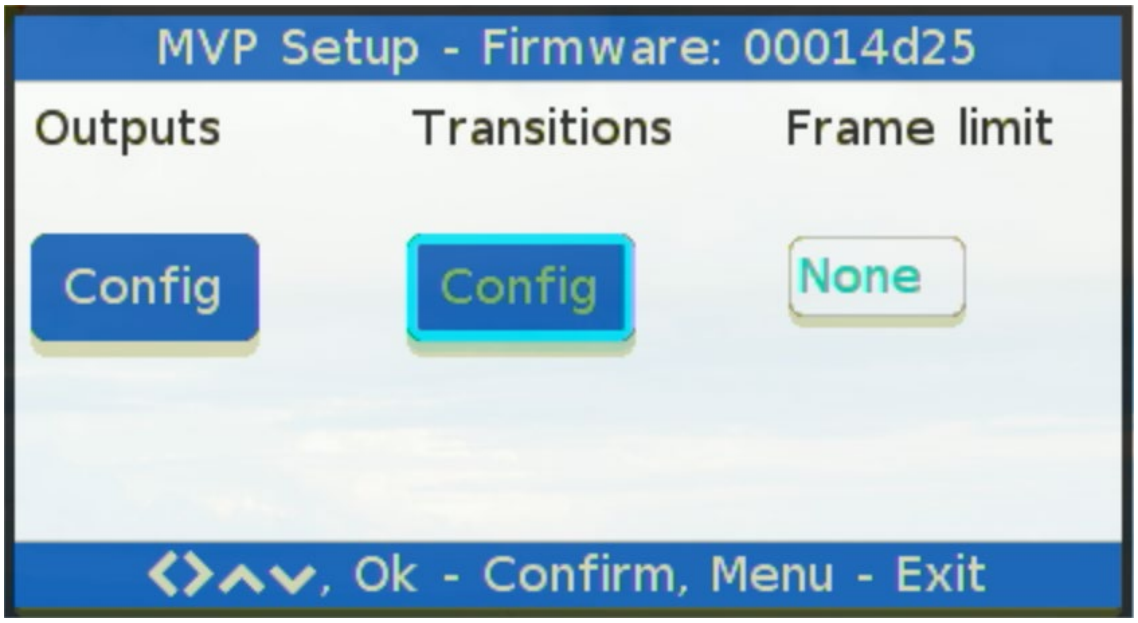




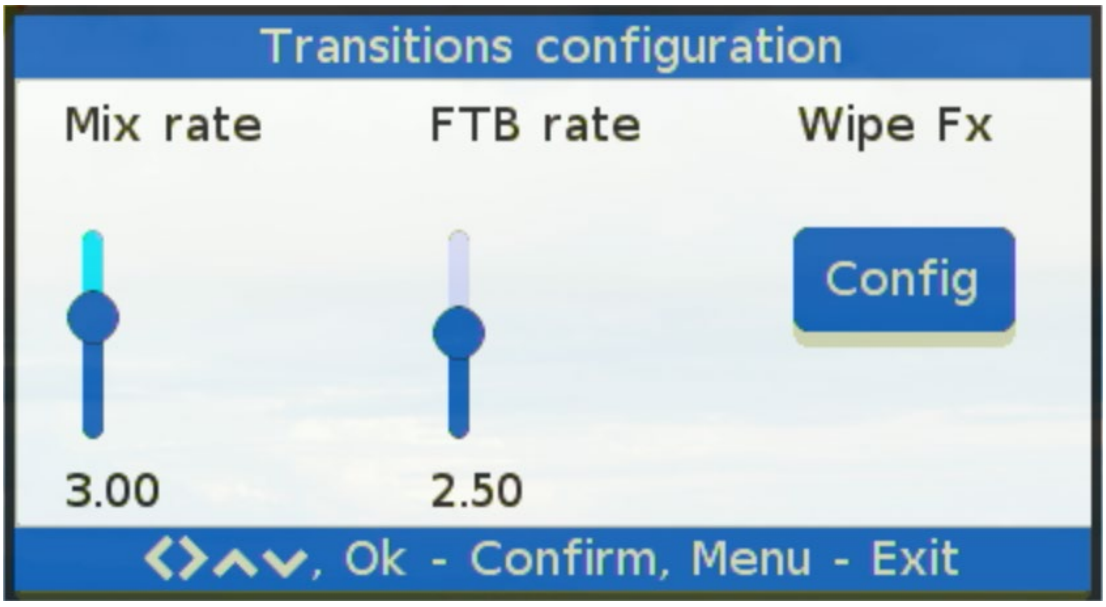
- T-Bar- This performs a manually controlled transition from the current program source to the selected preview source. The selected transition will be used. When the T-Bar has travelled as far as it can go the transition between sources is complete. The T-Bar has indicators next to it which light when the transition is complete.
- Mix – Pressing this button selects a basic dissolve for the next transition.
- Fx – Pressing this button selects a transition effect.
- TAKE – This performs a simple immediate cut from the current main source to the selected sub-source.
- AUTO – This performs an automated switch from the current program source to the selected Preview source. The selected FX transition or MIX is used. The timing of the transition is set in Menu.

10 Transitions

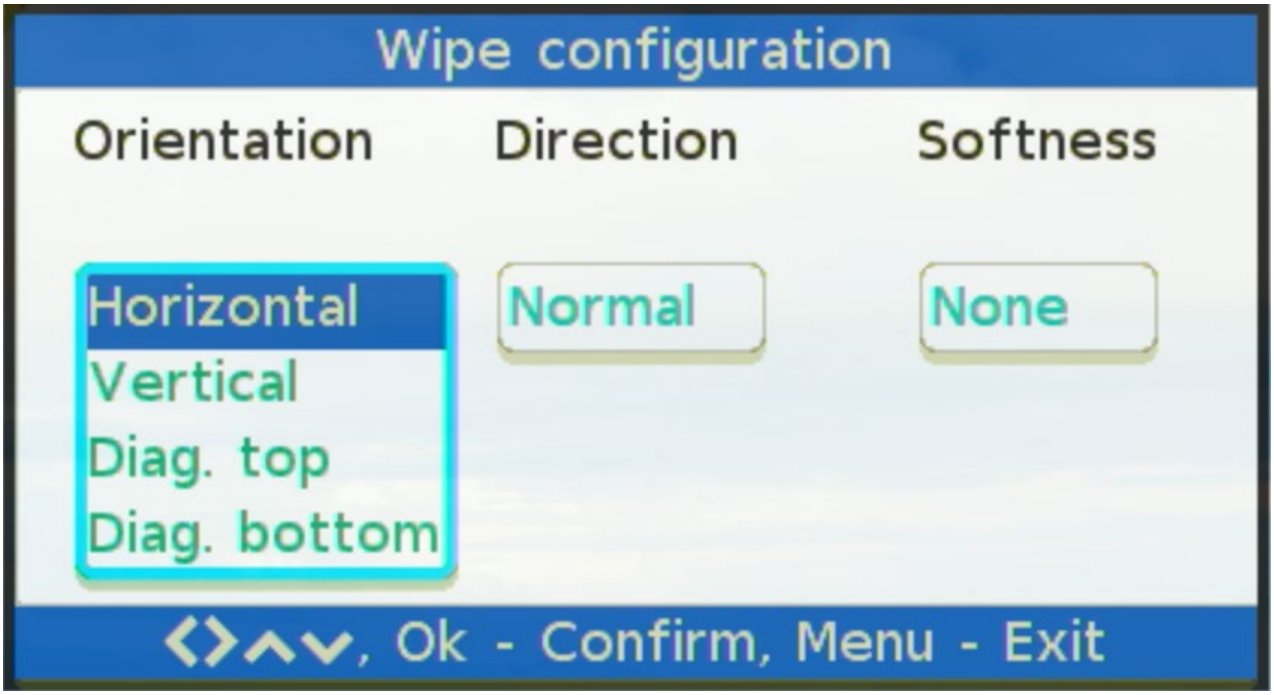
The user can make a transition from the current program source to the selected preview source. There are two modes of transition possible. MIX as a crossFade transition and FX make a transition depending on the selected option in menu.



In the transition/configuration menu, the user can control the RATE, and thus determine the duration of the MIX and FTB effect.

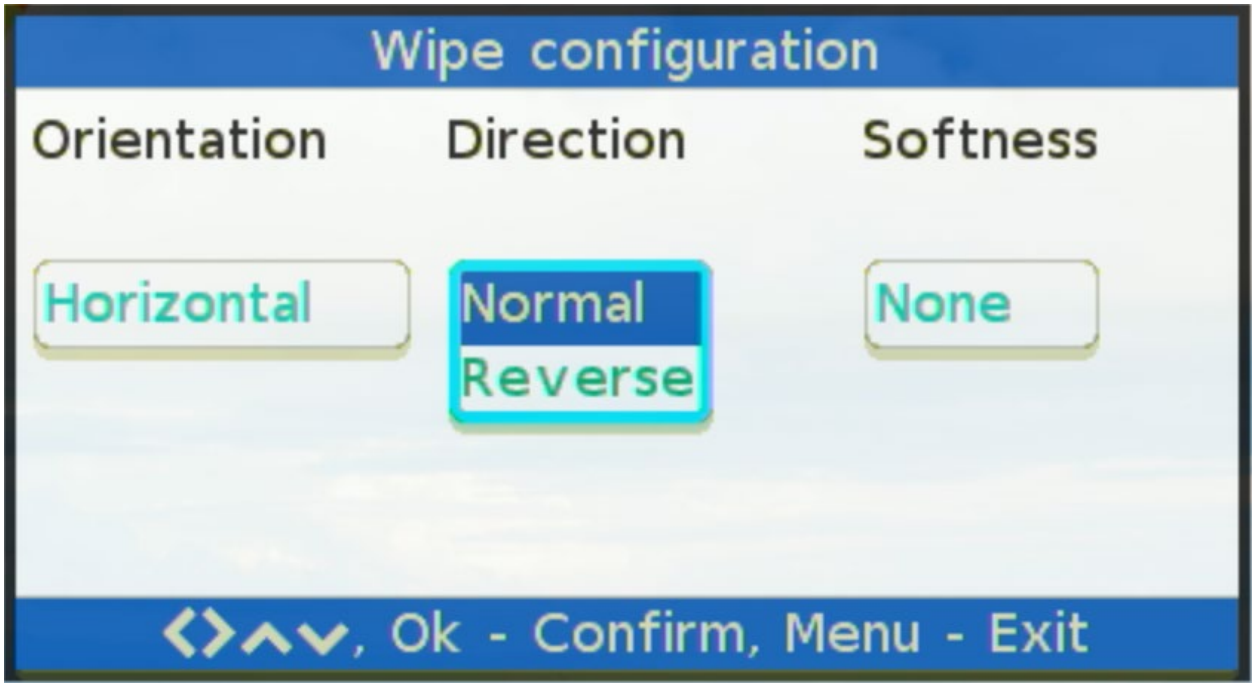


Instead of MIX effect it's possible to select on the MVP Keyboard the FX effect. Normal pressing switches transition to FX mode. After a long press, a popup will appear. User can define also a type of transition in WIPE fx menu.

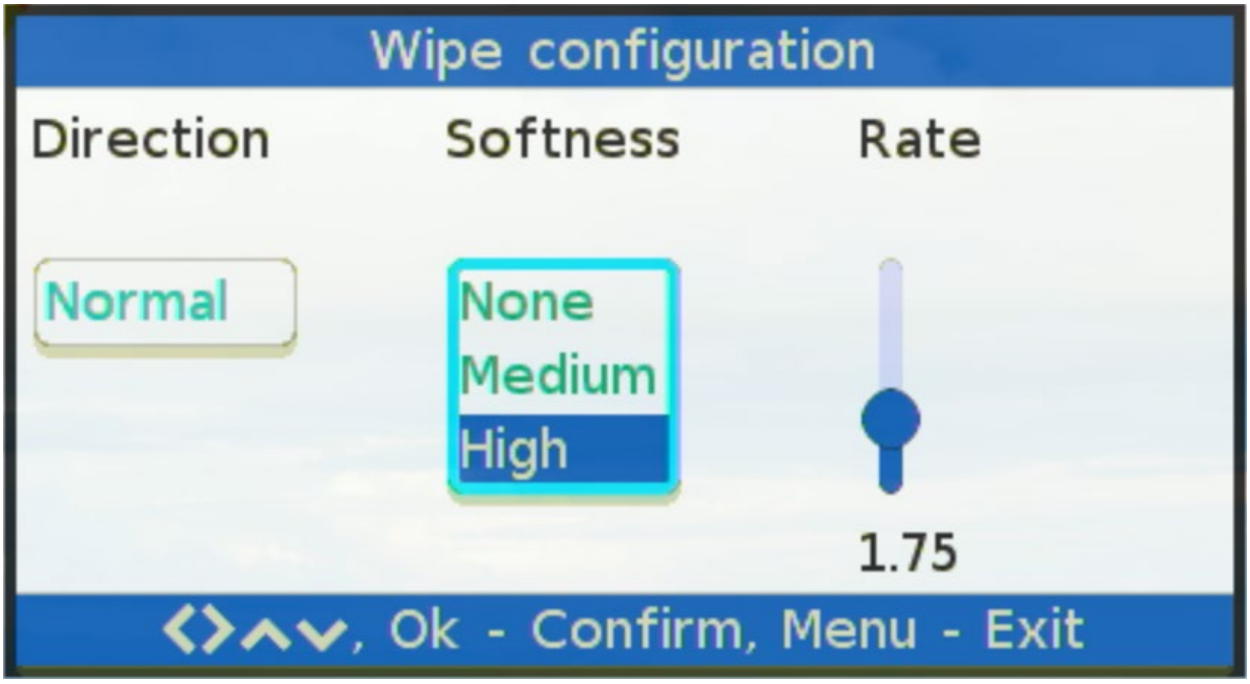


In the menu “orientation” the user select the type of Wipe transition. A wipe is a type of transition where one shot replaces another by travelling from one side of the frame to another. Horizontal when the frame goes from the left to right. Vertical - from the top to bottom. Diagonal top - from the top left of the diagonal view. Diagonal bottom - from the bottom left of the diagonal view.

In the case of selecting the Reverse mode, all described above directions will be reversed.



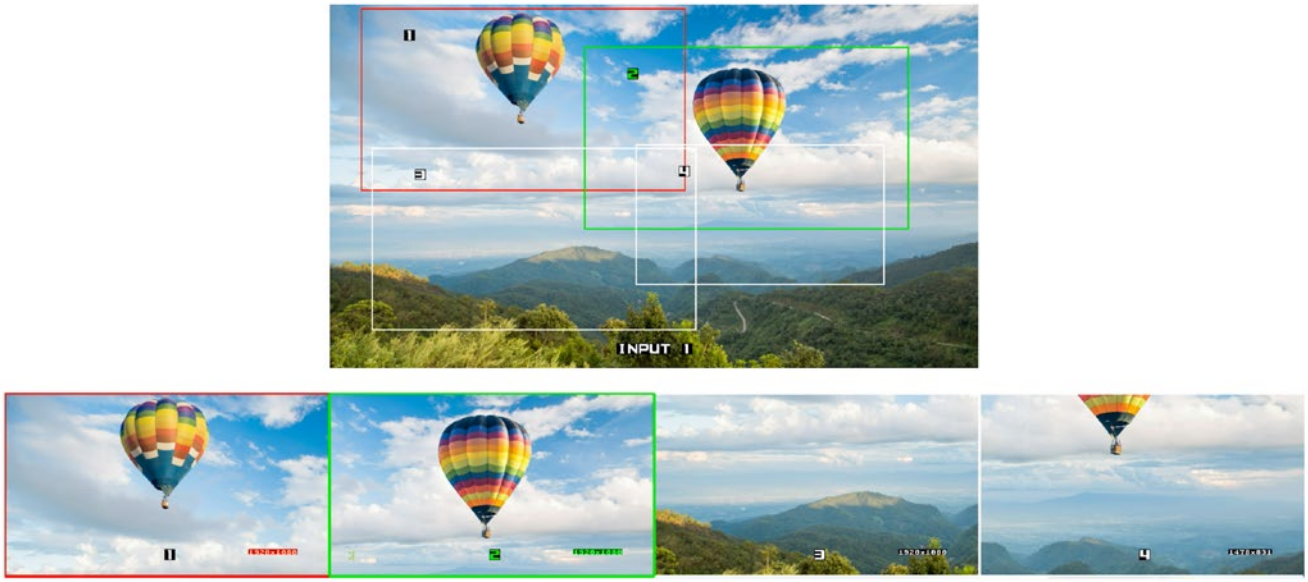
Three defined softening of the transition edge. None - without softness and Medium or High.



The last option RATE determine the duration of the FX effect.

11 Virtual video AUX outputs

You can define 4 AUX OUTPUTS windows on every UHD source signal. On the back panel of the MVP device, the user can find 8 SDI connectors signed to virtual frames.



For the 1st input channel, the resolution (size before scaler) of a window 1 can be up to 3860x2160, while 2, 3 and 4 support resolution of windows up to 1920x1080 pixels. The same applies to the second input channel. The resolution of a window 5 can be up to 3860x2160, while 6, 7 and 8 support resolution of windows up to 1920x1080 pixels.

The virtual AUX output signals are as many as 8 channels. They are created for each channel by indicating an active area from the area of the device's input signals. The definition of the area, which will determine the output content, is nothing more than a simple positioning of a rectangle in the MultiViewer preview for a given channel, and that, of course, against the background of the device's input signal. Each of the rectangles is marked with a white border color. If one of frame is selected in Program row, then is marked with a red border color. If in preview then is marked with a green border color.

For one of the channels you can scale the signal from full 4K resolution to FullHD, and there is up and down scaling (zoom) possible for all other outputs. The output area (position of each rectangle) may be a function of a variable, which means in constant motion. For each rectangle, there are simple motions available, you just need to select one of the available modes. The scope of all the settings and the end positions are defined in a user friendly interface.

PTZ JOYSTICK CONTROL

Note: Before attempting to use the joystick to PAN, TILT or ZOOM a selected window, first make sure the LOCK button is not enabled. If the LOCK button LED is ON, the joystick is locked; press the LOCK button to unlock the joystick.

- PAN – Move the joystick left or right to pan the window from left to right or vice versa.
- TILT – Move the joystick up or down to tilt the selected window up or down.
- ZOOM – Twist the joystick clockwise or anti-clockwise to have the selected window resize like zoom in or out.

The speed at which the selected window moves can be chosen by pressing one of the three speed buttons (Slow, Medium, Fast).

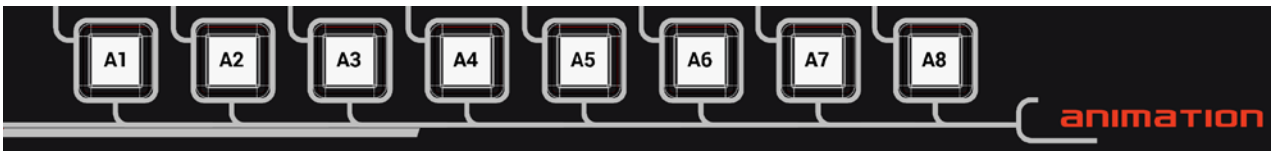
12

Animation

Every window can be animated. Motion is made by defining the Start and End positions, along with their transition mode (single, loop, ping-pong) During the motion, every window can change its size. This feature simulates the digital zoom.

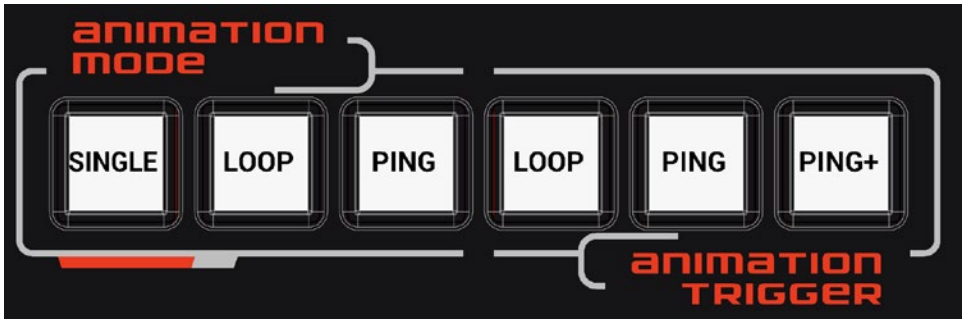
ANIMATION CONTROL

8 buttons to control animation on every virtual source. After press animation starts and button light amber. Second press will pause animation – next press will resume it. Keep pressed more than 2s stops animation and jump to start position.



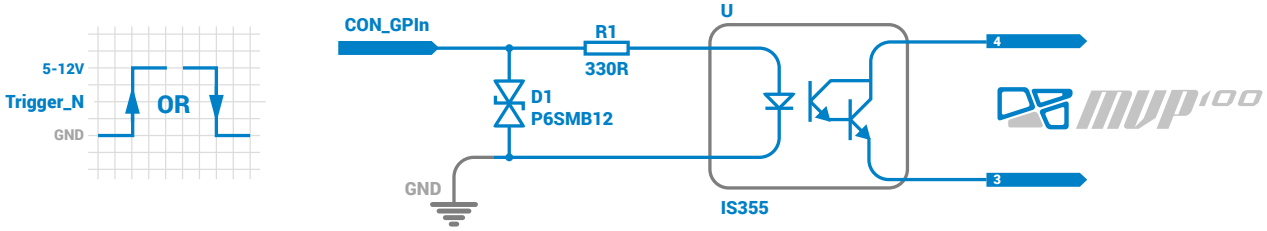
ANIMATION MODE

Motion modes. You can select the motion mode on the MVP keyboard. The available options are: Single – single passage Start-Stop; Loop – cyclical passage Start-Stop, Start-Stop; Ping-Pong – cyclical passage Start-Stop, Stop-Start, Start-Stop and so on (swinging motion).



Trig Loop, Trig Ping-Pong, Trig Double Ping-Pong – single pass: Start-Stop, Stop-Start.

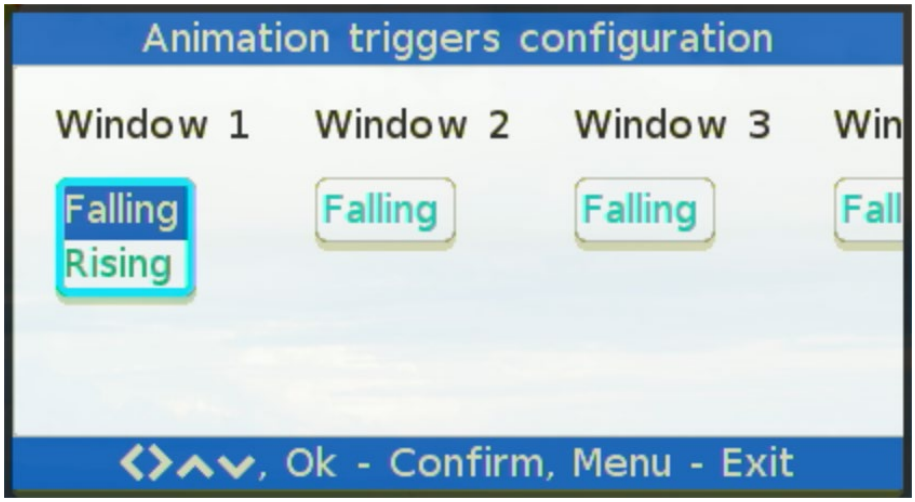
Trig. motion triggered by a signal from outside the MVP device.



You will see the motion as a movement of the virtual camera window.

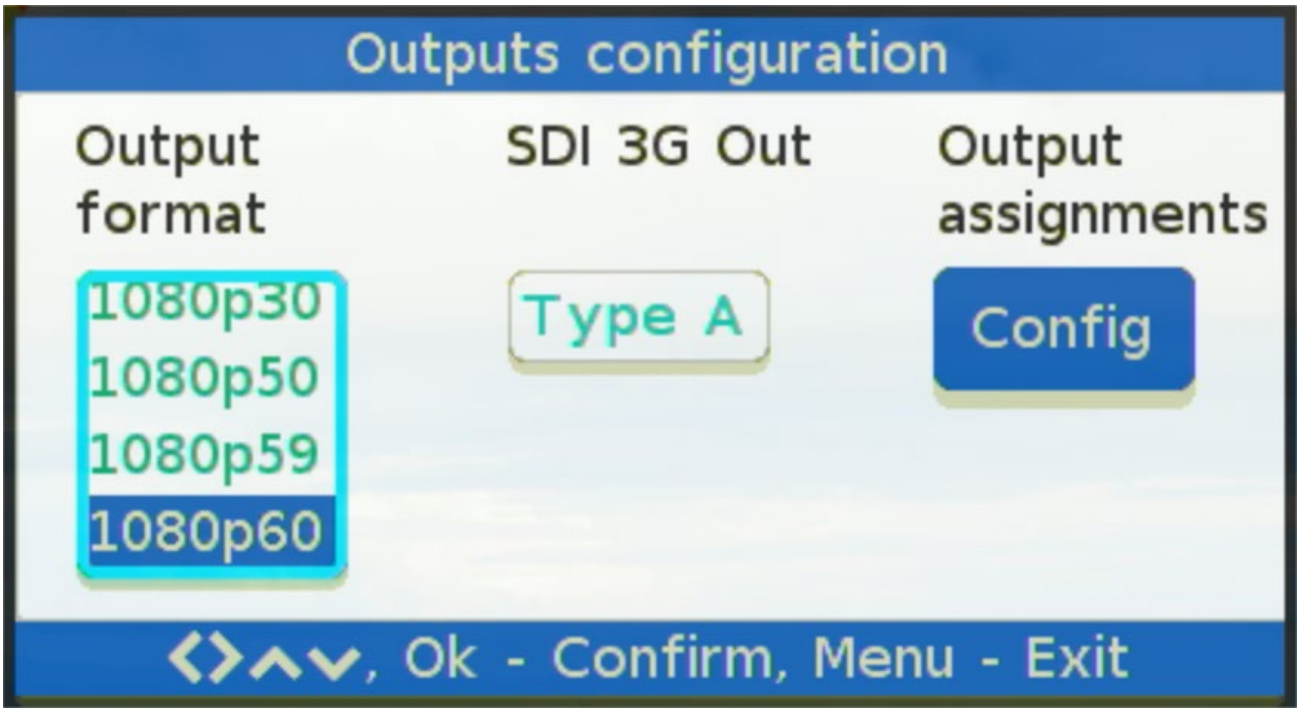
Press the MENU button and press the left arrow to navigate through the menu options until the “Animation triggers” option is selected with a blue frame.

Press OK to go to the next options. In the menu section user can define the the edge (rise or fall) of external trigger signal.



13 Output video format

The program output is provided on the rear panel of the Reckeen MVP device as an HDMI connector. The user can choose the video format in the menu for Program channel (HDMI output) and 8 SDI AUX outputs.



Of course, you may need to changing of the video format at any moment but after confirmation selected format in menu, the device must change also the global setting for all output - Program, Aux and Multiviewer.

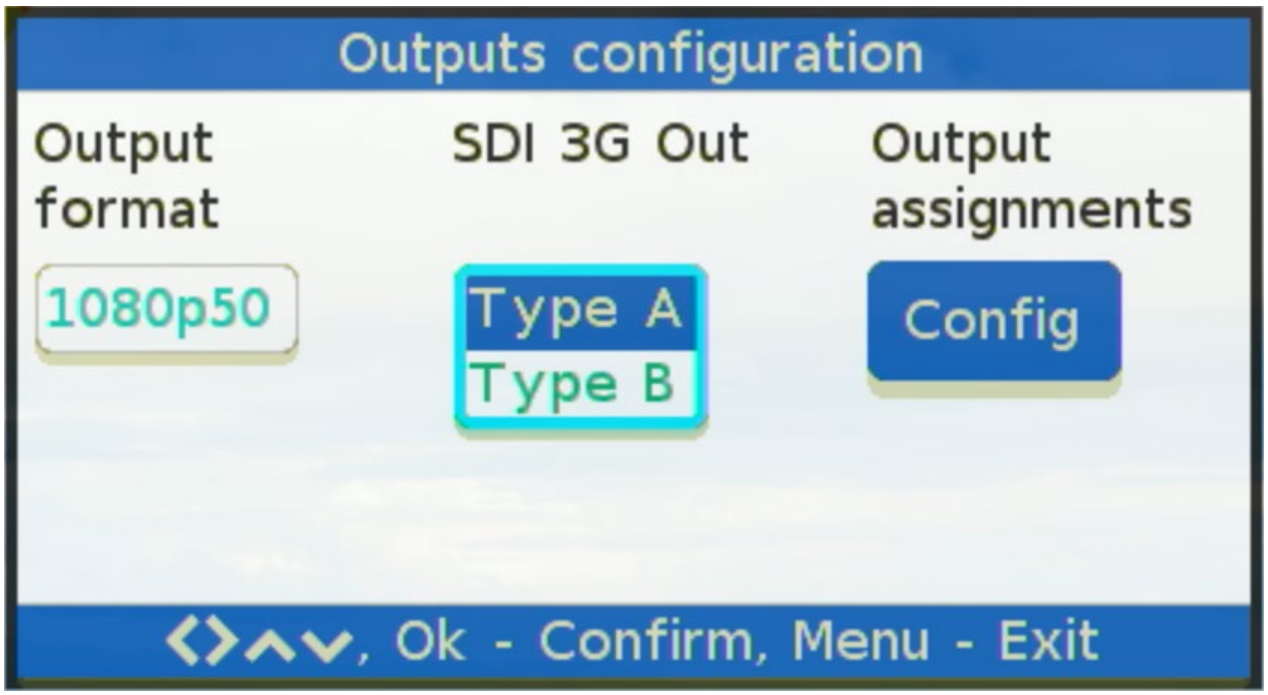
14 Audio

After pressing the MENU button on the Reckeen MVP 100 KEY the user can navigate to Audio settings. There are two options presented in the picture below.

The “MIX” (mixing) function gives users the opportunity to hear the sound from booth inputs A and B on the program output. The second one called “Follow Video” gives the user the opportunity to hear the sound depending on the button pressed in the Program line. On the SDI Aux output connector user always hear the own input. Frame 1 to 4, the audio from input 1 and 5 to 8 the audio from input 2. On the Multiviewer HDMI, there is always mixing all Inputs.

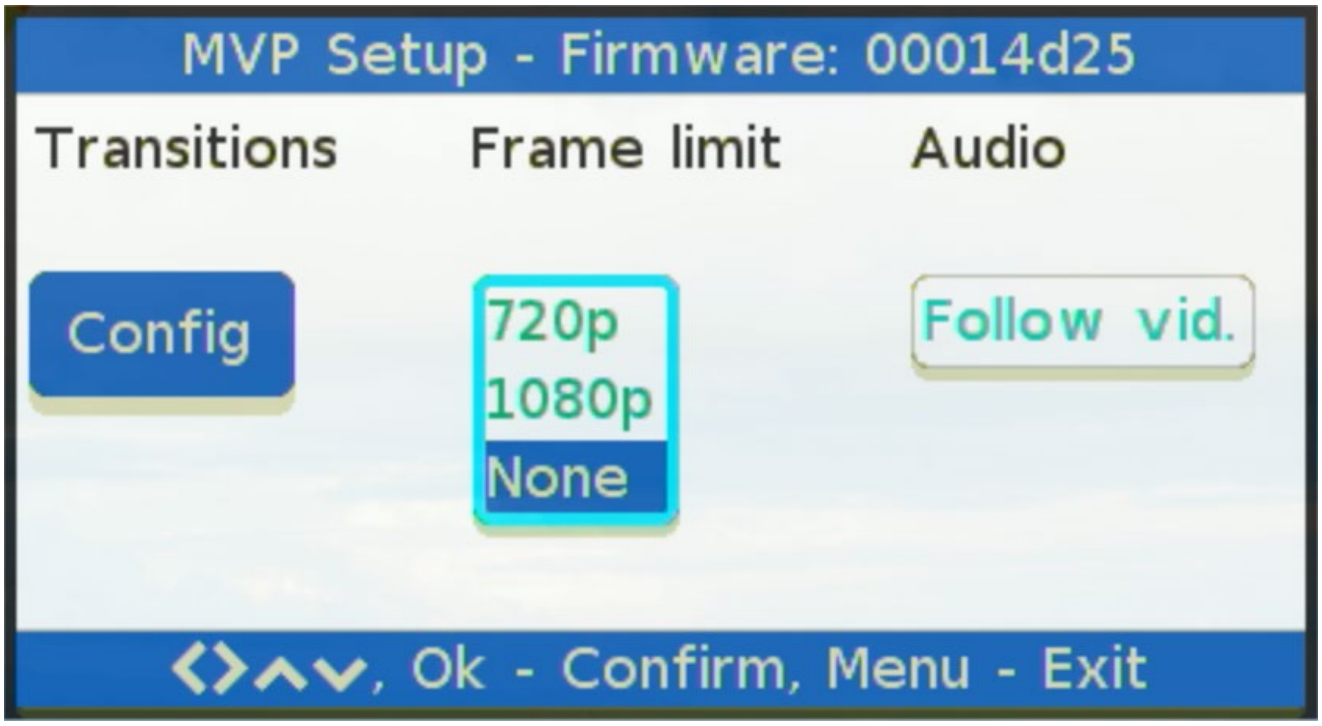
15 SDI 3G output

In case of selection in menu the output format as 1080p50,59 or 60 the user can define for 8 SDI outputs the signal type. There are two option 3 Gb/s level A or B.

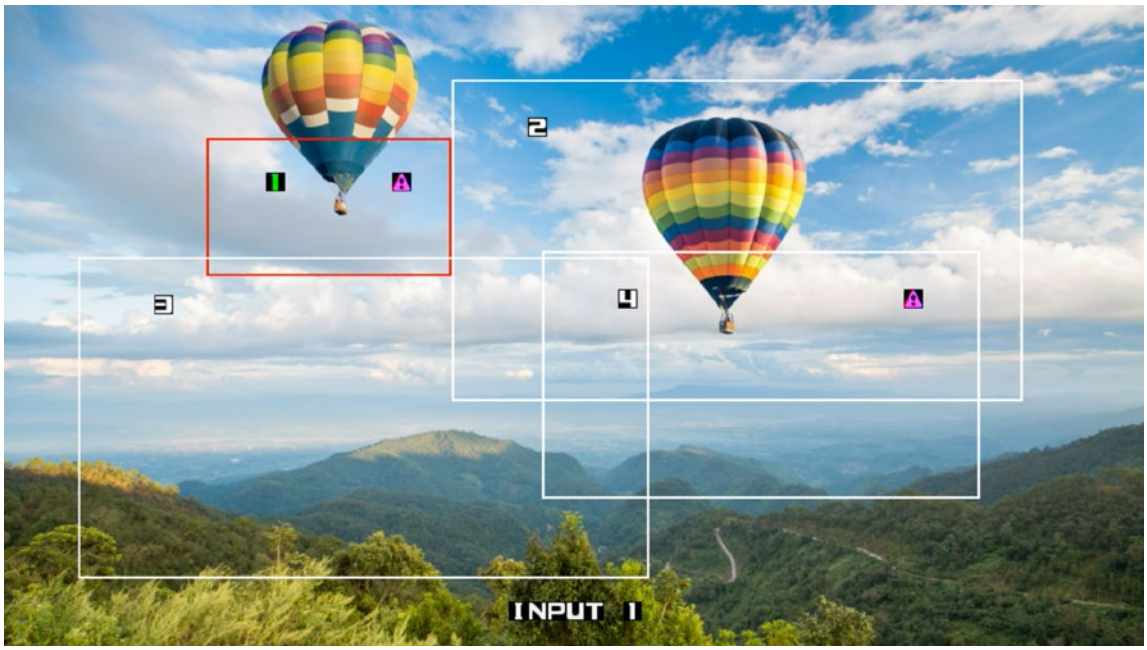


16 Frame Limit

For each input, the user can select a virtual window. Using the joystick can set the position and reduce the size. The option called “frame limit” gives the option of reducing the window to the selected value. It is a function that prevents unexpected reduction of the resolution. It is used only in the case of 4k inputs. For other input formats it is possible to set any frame size.



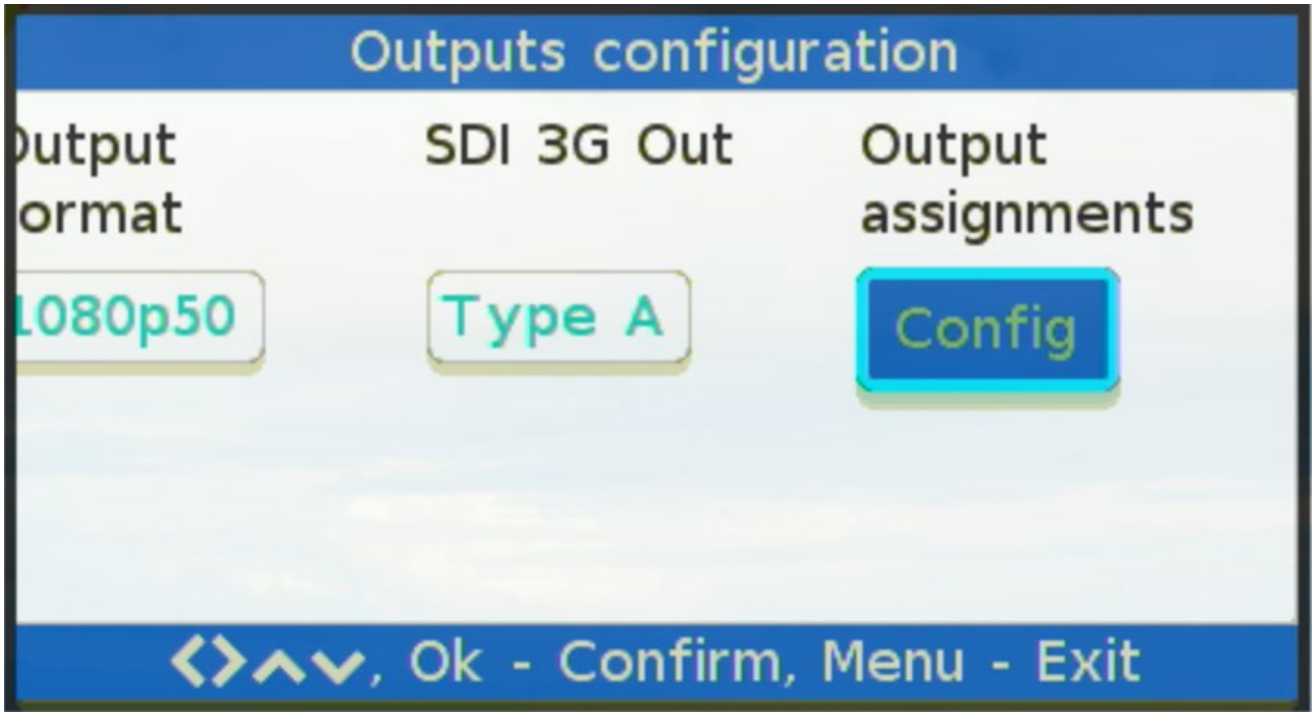
In some cases, the user can set his own window size below the value suggested in the menu, and then change the frame limit to one of the options. In this case, an exclamation mark will appear on the selected frame.



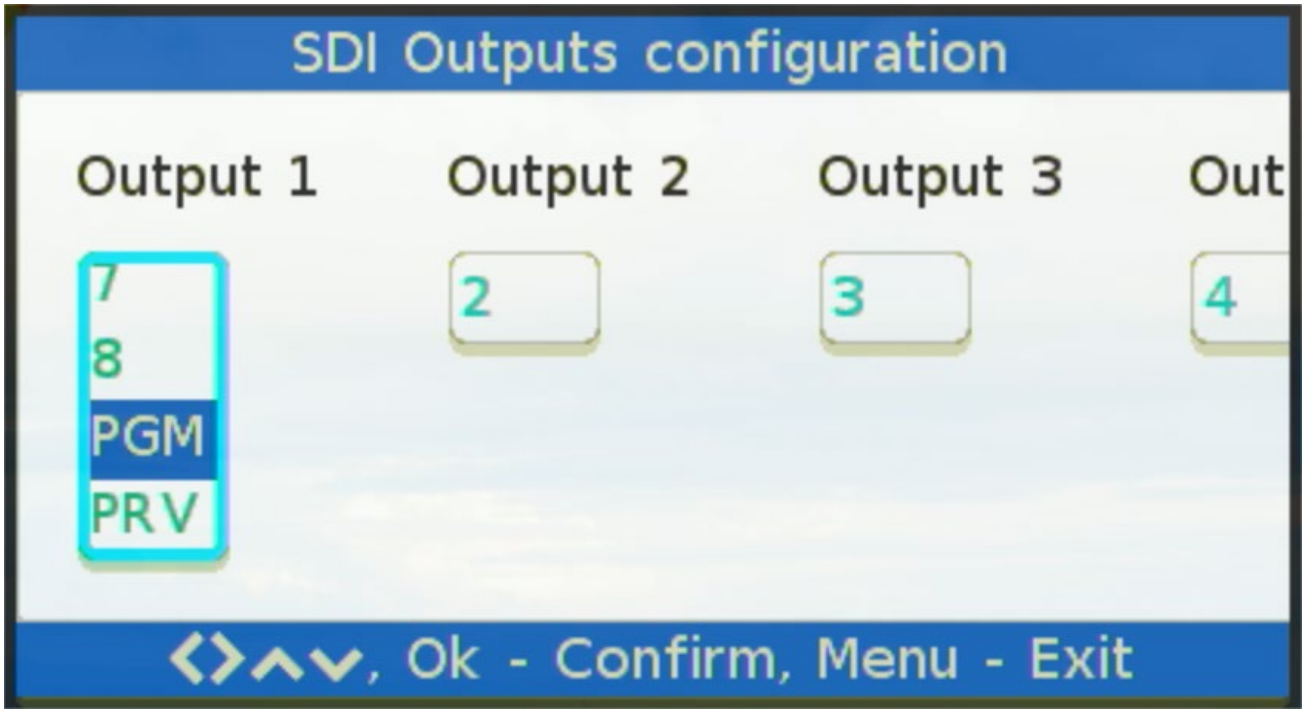
The user can increase the window size until the exclamation mark disappears.

17 Output assignment

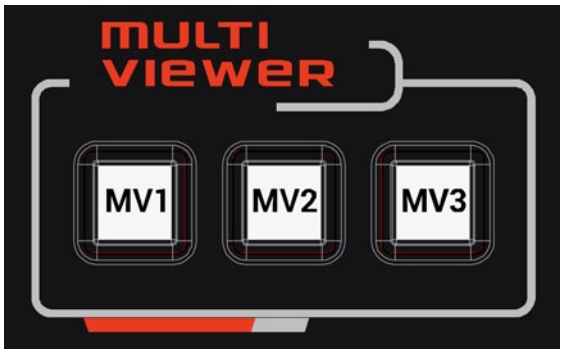
The MVP 100 device has 8 SDI connectors that display 8 virtual frames in the default state. Thanks to the “assignment of output” option, the user can change the content sent to the SDI output. Each of them can display each virtual frame or be dependent on the selection of the frame in the program or preview line. Press the MENU button and press the left arrow to navigate through the menu options until the “assignment of output” option is selected with a blue frame.



Press OK to go to the next options.

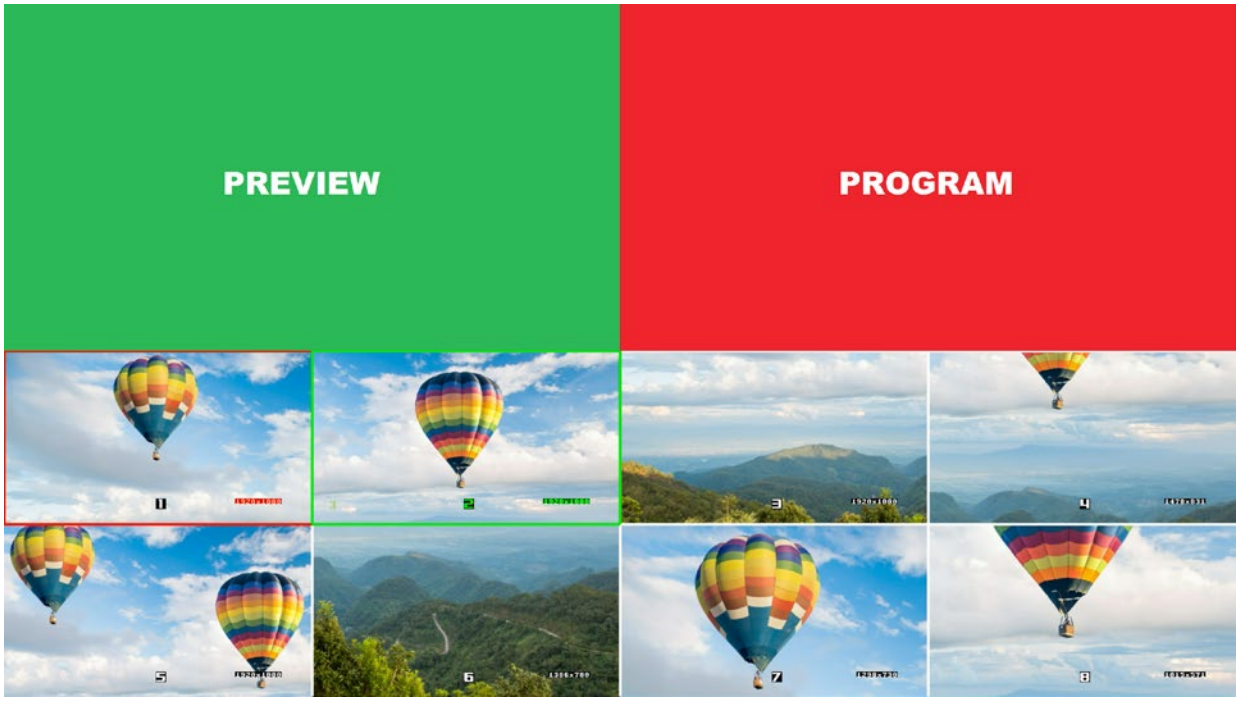


MVP 100 interface gives a 3 ways of preview for the operator. The main window is split up on two section. Top section depends on the selected function, and bottom section which represents each view from the AUX output.

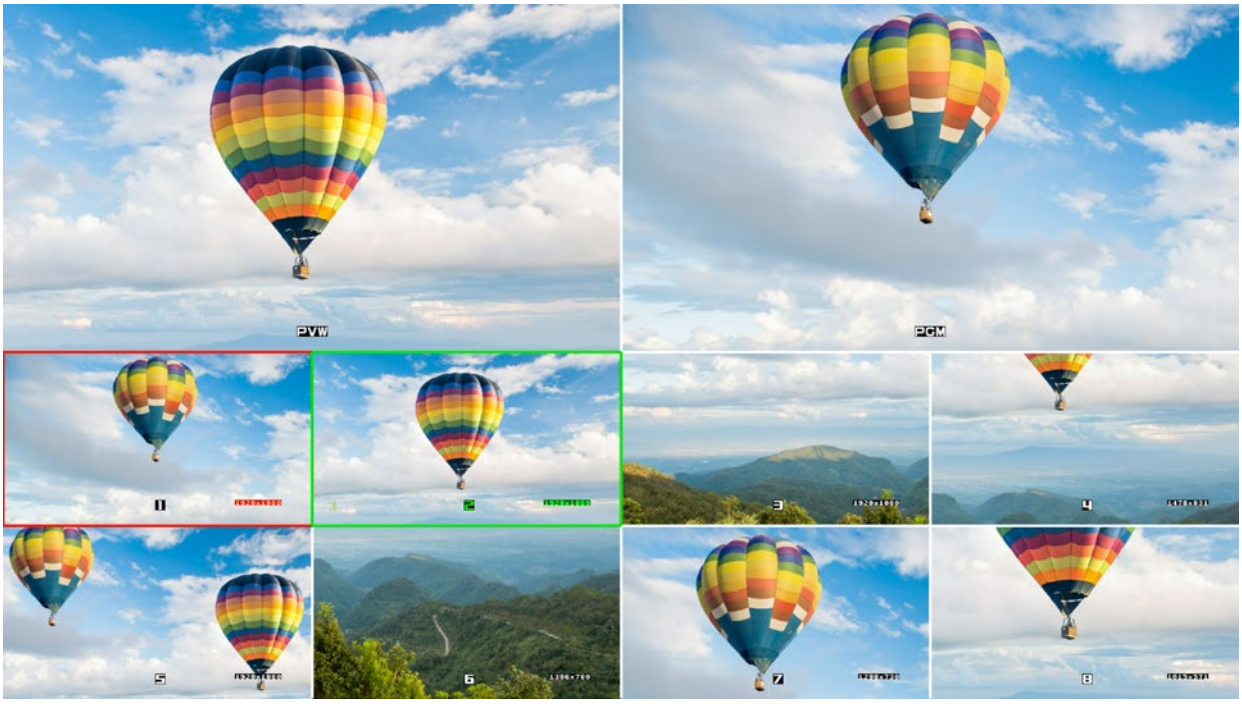


- MV3 – Preview/Program (standard switcher view)
- MV2 – Inputs/Program (Full inputs with frame position instead Preview)
- MV1 – Motion view (animation setting window

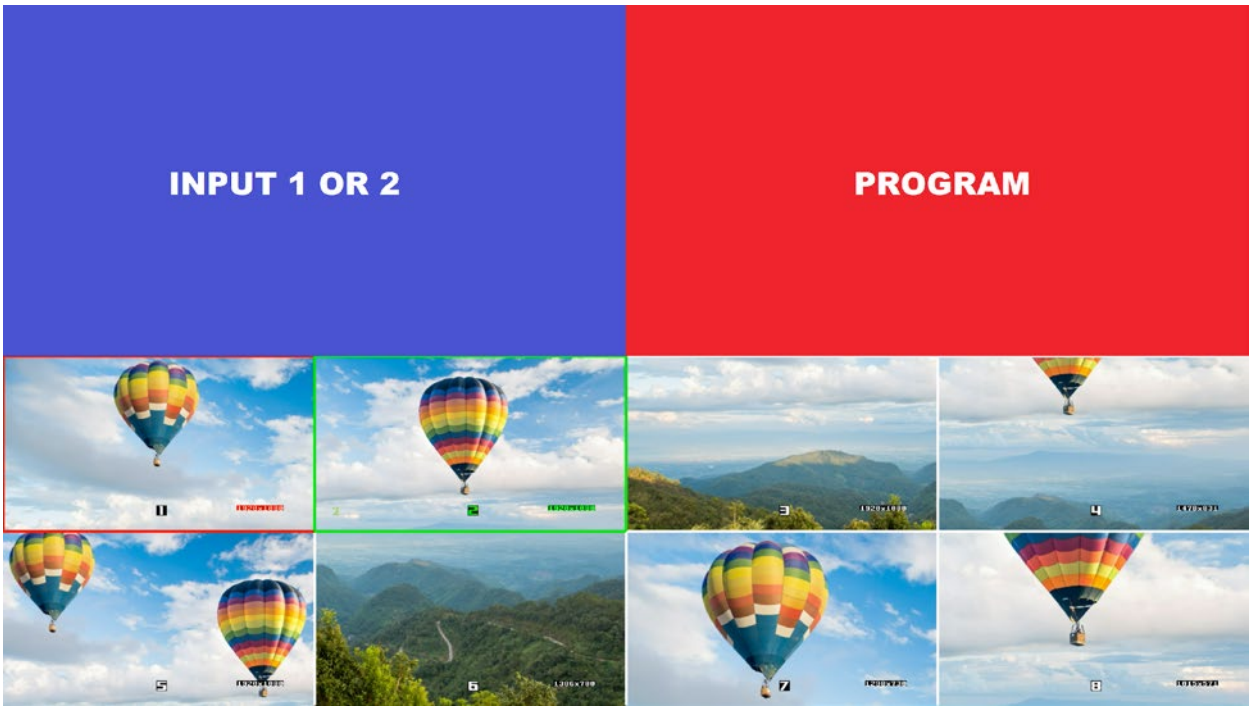
The MV3 function shows two larger screens at the top. On the right side PROGRAM view for the currently selected frame in program section. On the left side PREVIEW view for the currently selected frame in preview section. At the bottom of the Multiview, there are 8 smaller previews for each frame. If one of the frames is selected in the program line, then it is marked in red. If it is selected in the preview line, it is marked in green.



As an example, if frame number 1 is selected in PROGRAM row, then top right larger preview shows frame number 1. If frame number 2 is selected in PREVIEW row, then top left larger preview shows frame number 2.

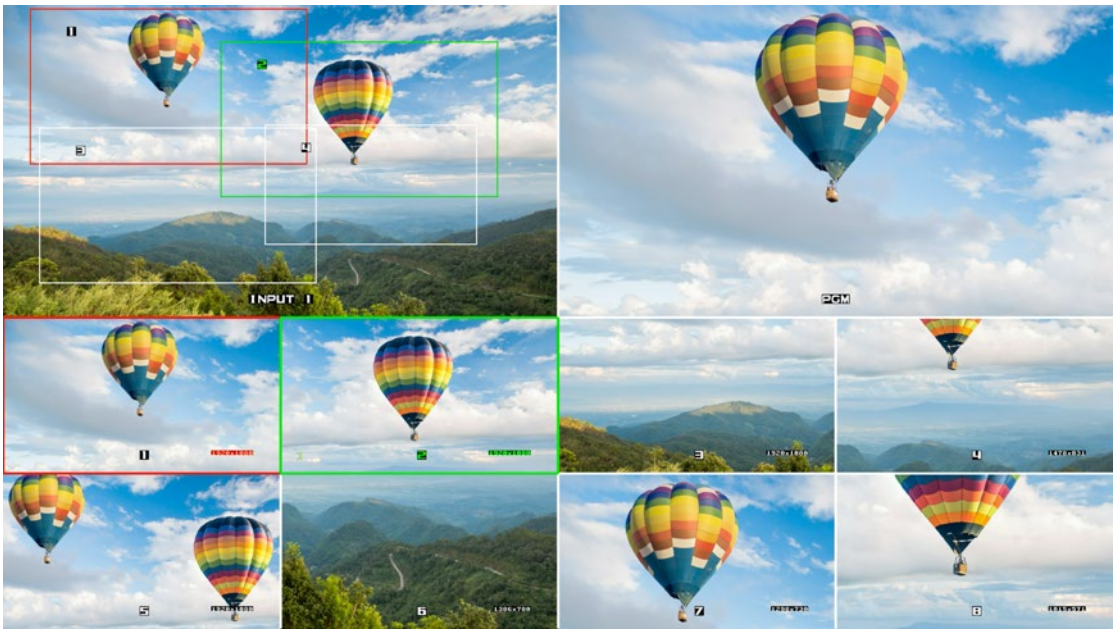


The MV2 function is slightly different, because the top left view determines which frame is currently selected in the preview line. Depending on the selected frame, the view shows the full input 1 or 2 screen. Frames 1-4 belong to input 1 and 5-8 belong to input 2.

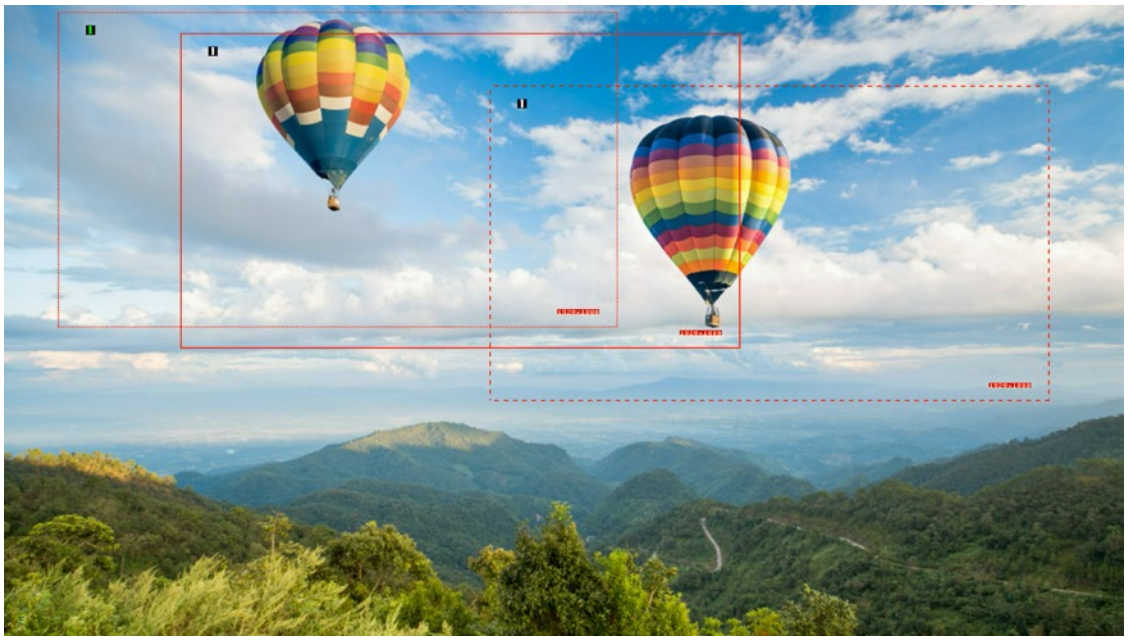


In addition, the full-screen view of the Input has the drawn positions of each frame.

As an example, if frame number 2 was selected in Preview row, then the multiviewer shows Input 1 with drawn frames 1-4.



The last multi viewer will be displayed after pressing MV1 button on the keyboard MVP. This type of view was created to facilitate the work of animation setting. Pressing one of the buttons located in preview section user choose one frame which is signed to Input A or B. At the view three frames are drawn. User can make position of starting frame (dotted line) using the joystick, which is at this moment presented as current frame. After pressing again the same button, on the preview section, the user switch selection from starting frame to ending frame (dashed line). In this case user can observe the color of the frame's signature will be changed in green. User can change the position of ending frame. Be careful because at this moment ending frame will be displayed as current frame on Aux output. After starting the animation, the 3rd frame of the current position appears. Each frame has a description of the resolution in bottom/right corner.



19

Rescue mode

Rescue mode is a service function that the user should not turn on. You can enter rescue mode by switch POWER button more than 10 sec. during power off sequence. If you accidentally turned on the rescue mode, switch to the normal operation have to be done in the same way.

Start MVP device in rescue mode, and then press POWER button for at least 10 sec. to switch it OFF. Keep it pressed even if FANs stop working. You can observe below indicator which will blink few times and will be OFF. After next power ON , MVP will work in standard mode.

19

Rescue mode

Rescue mode is a service function that the user should not turn on. You can enter rescue mode by switch POWER button more than 10 sec. during power off sequence. If you accidentally turned on the rescue mode, switch to the normal operation have to be done in the same way.

Start MVP device in rescue mode, and then press POWER button for at least 10 sec. to switch it OFF. Keep it pressed even if FANs stop working. You can observe below indicator which will blink few times and will be OFF. After next power ON , MVP will work in standard mode.

20

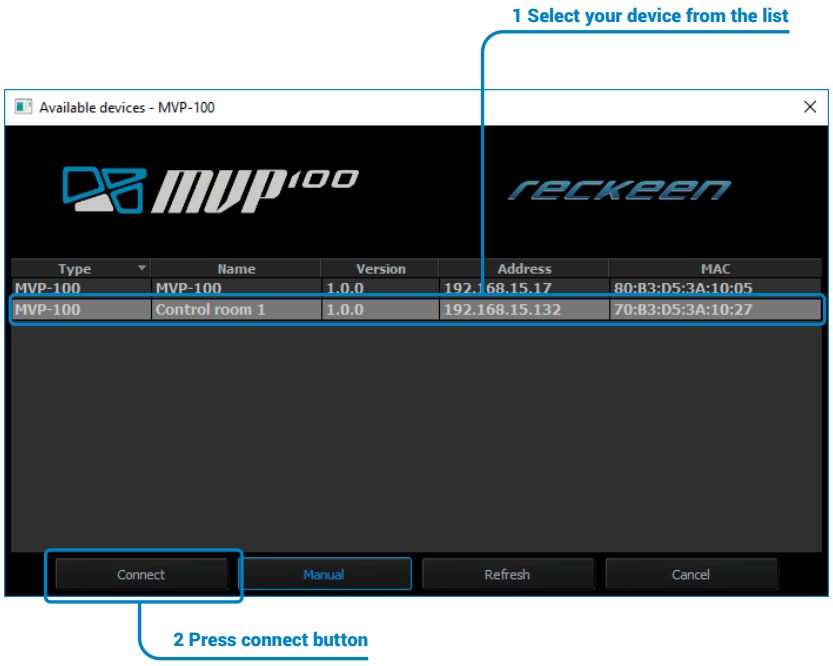
MVP-100 firmware update procedure

Connections

1. Connect MVP-100 to Ethernet network (1). Picture below. MVP-100 by default use DHCP server to assign its IP address. In case of no DHCP set default IP: 192.168.1.10
2. Connect MVP Control panel (2) and switch its power ON – upgrade procedure will change its firmware as well.

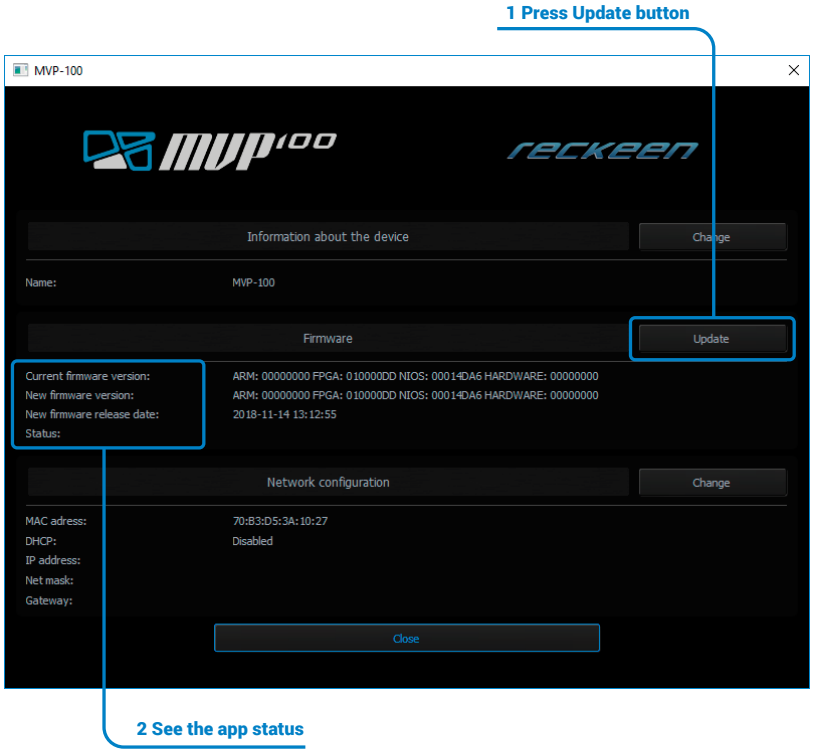
Start MVP application

1. Select your device from the list (1). Picture below.
2. Press connect button (2).

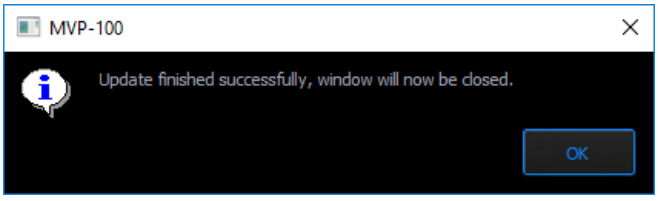


Press Update button (1). Picture below.

1. See the app status (2). Update info also are displayed on MV output.

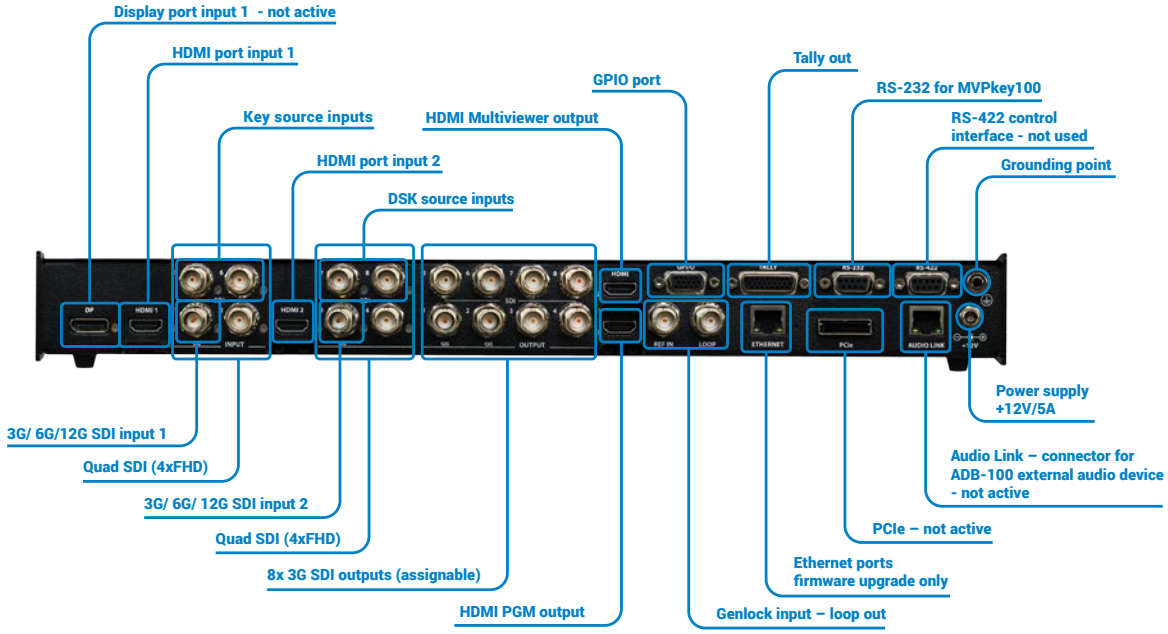


Update finished . Picture below



21

Back panel view



VIDEO INPUT 1

Video input 1 supports many formats of 4k signal.

- DP – display port used mostly in PC systems supported resolution up to 4k60p - not active
- HDMI 1- hdmi 2.0 port mostly used in cameras, and PC systems as well. Resolution up to 4k60p
- Direct4 SDI inputs – Every SDI connector acts as single system input up to 1080p
- 4k SDI – Serial Digital Interface mostly used in professional equipment. Support single 12G signal or QUAD 4x3G. Resolution up to 4k60p

VIDEO INPUT 1

Video input 2 supports many formats of 4k signal.

- HDMI 1- hdmi 2.0 port mostly used in cameras, and PC systems as well. Resolution up to 4k60p
- Direct4 SDI inputs – Every SDI connector acts as single system input up to 1080p
- 4k SDI – Serial Digital Interface mostly used in professional equipment. Support single 12G signal or QUAD 4x3G. Resolution up to 4k60p

VIDEO OUTPUTS

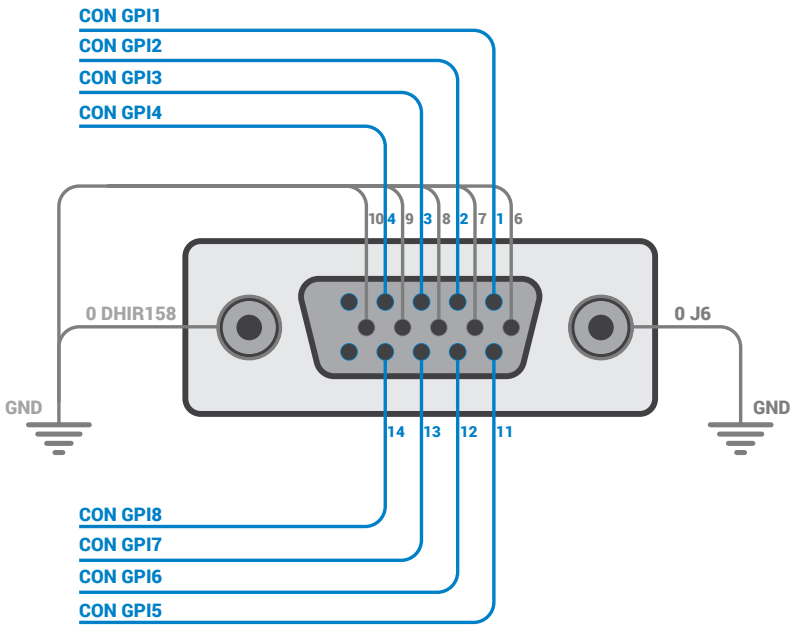
The eight BNC output connectors are user defined SDI outputs. Each of these SDI outputs has the option to be: Program/ Preview/ Aux1,2,3,4,5,6,7 or 8

Lower HDMI out is fixed as PGM out, and Upper HDMI acts as Multiviewer only.

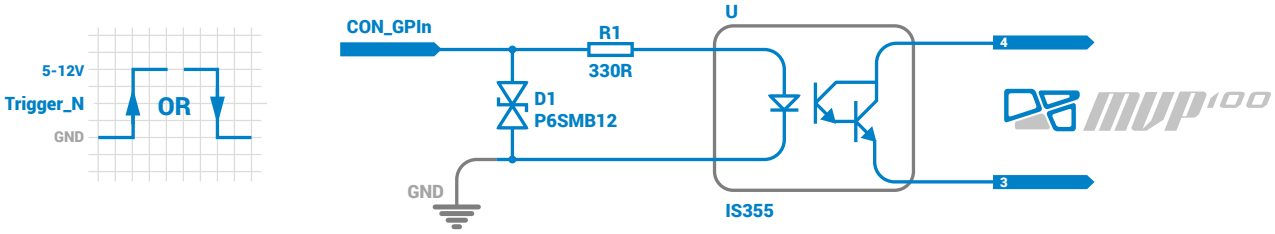
GPIO

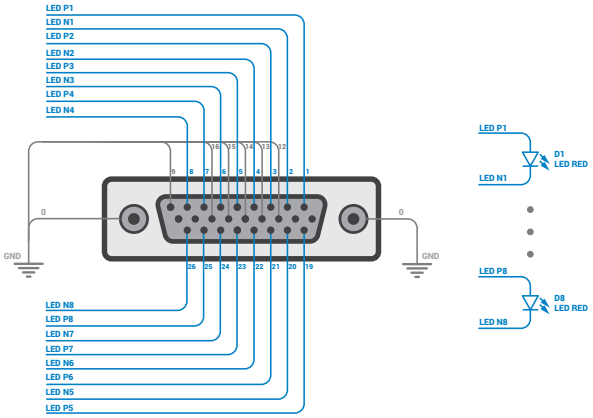
GPIO interface – a universal input/output port for various applications. GPIO (General Purpose Input/Output) is an interface used for communication between MVP-100 system components and various peripheral devices. GPIO pins can be used as inputs. Thanks to GPIO Interface it is possible to broadenMVP-100 device's functionalities resulting from cooperation with external devices. An external device can activate a trigger in MVP-100, that is windows' motion control (a virtual camera). You can program up to 8 windows, each with a different type of motion (single, loop, ping-pong, zoom etc.).

Signals' definition on GPIO pins is shown in the image below.

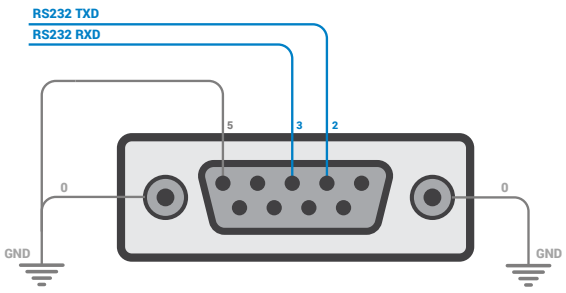


GPI diagram: Connecting a transistor and electrical parameters. See the image below.

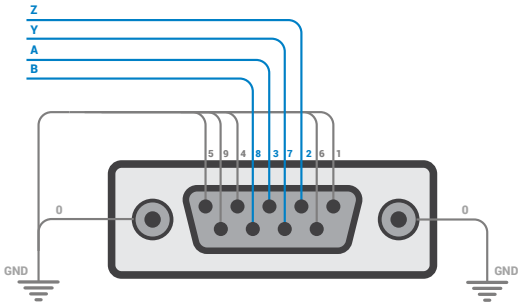

5-12V
Trigger_N
GND
OR
CON_GPIn
R1
330R
D1
P6SMB12
U
IS355
GND
4
3


LED P1
LED N1
LED P2
LED N2
LED P3
LED N3
LED P4
LED N4
LED N8
LED P8
LED N7
LED P7
LED N6
LED P6
LED N5
LED P5
GND
D1
LED RED
D8
LED RED

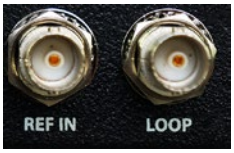
TALLY


RS232 TXD
RS232 RXD
5
3
2
0
GND

RS232



RS422



GENLOCK

Genlock allows the specification of the reference signal for output channels synchronization.

ETHERNET

AUDIOLINK

POWER

GROUNDING

22

Control Panel MVPKey-100

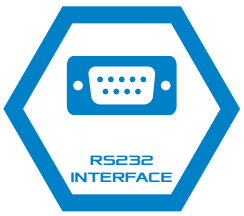
The MVPKey100 control panel stands for ergonomics, high performance, premium craftsmanship and style. Reckeen MVPKey100 Control Panel – Precise control over real-time video operations for professional use.

With Reckeen MVPKey 100, you can have control over multiple functions of the Reckeen MVP100. We have designed it to be operators' working environment friendly, functional, modern and reliable, but also to be affordable. Our control panel combines ergonomic design, top-quality precise mechanics and versatile functionality. Its main features are:

Its main features are:

- Power Supply 12V / 1A - Safe power supply voltage
- Communication interface RS232 - To connect to the Reckeen Studio system
- Joystick and T-bar calibration functions - These functions allow precise calibration of both handles at any time
- Adjustable brightness of the buttons - Precise control over brightness for maximum user comfort
- Joystick XYZ (3-axis) - With this multifunctional joystick you can precisely manipulate the virtual camera window.
- Comfortable T-bar Fader - With a contactless Hall Effect technology using magnetic sensor and angle measurement. A smooth consistent feel is achieved by utilizing Teflon bearing surfaces and steel ball races
- Mechanical adjustment of the T-bar resistance - It ensures a smooth and precise forward and backward movement of the T-bar handle
- Buttons backlight function test - Users can perform the test themselves
- 70 LED illuminated button - 70 LED illuminated buttons for heightened visibility of control surface activity.

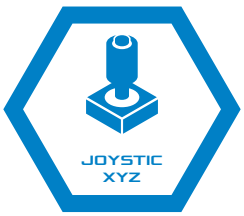
Power Supply 12V / 1A - safe power supply voltage.



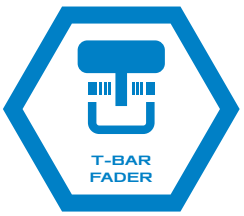
Communication interface RS232 - to connect to the Reckeen Studio system.

Joystick and T-bar calibration functions - these functions allow precise calibration of both handles at any time.

Adjustable brightness of the buttons - precise control over brightness for maximum user comfort.



Joystick XYZ (3-axis) - with this multifunctional joystick you can precisely manipulate the virtual cameras' movements in a virtual space.



Comfortable T-bar Fader - with a contactless Hall Effect technology using magnetic sensor and angle measurement.
A smooth consistent feel is achieved by utilizing Teflon bearing surfaces and steel ball races.

Mechanical adjustment of the T-bar resistance - it ensures a smooth and precise forward and backward movement of the T-bar handle.

Buttons backlight function test - users can perform the test themselves.

70 LED illuminated buttons for heightened visibility of control surface activity.


CAM 1
4K
CAM 2
4K
HDMI or SDI 12G
HDMI or SDI 12G
VIDEO STREAMER
PGM
HDMI VIDEO
MULTIVIEWER
SDI 3G
CAM 1
FULL HD
CAM 2
FULL HD
CAM 3
FULL HD
CAM 4
FULL HD
CAM 5
FULL HD
CAM 6
FULL HD
CAM 7
FULL HD
CAM 8
FULL HD
VIRTUAL CAMERA WINDOW
OPERATED BY JOYSTICK
GENLOCK
RS422
LAN
AUDIO
LINK
GPIO
VIDEO RECORDER
8x SDI VIDEO
CONTROL PANEL
TALLY

23

How to connect Keyboard MVPKey-100 to the Reckeen system

The full set of configurations includes:

- MVPKey100 Keyboard
- RS 232 communication cable with DB9 connector.
- Power supply unit and adapterst

Connect the keyboard to the system using RS 232 communication cable with DB9 connector. Plug the end of the cable to the MVP100 device. Connect the other end of the cable to the keyboard's port. Screw in the locking screws. Picture below.

First connect the power supply plug to the MVP 100 device power socket. Picture below

Next bolt the locking screw and connect the power supply unit to the electrical outlet. Picture below.

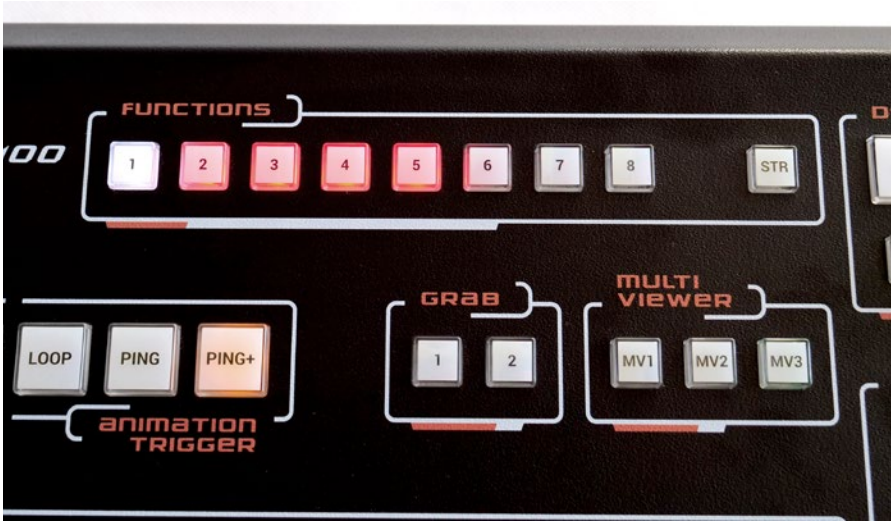
To turn the device on, press the power button. Picture below.

24

Calibration of Joystick and T-Bar

Simultaneously press the following buttons: SINGLE , PING + and and LOCK like the picture below.

5 buttons will light up signaling execution of a test for example, communication F1. Picture below.



The second test is JOYSTICK's calibration.Move it to the right and to the left to its extreme positions. When it's completed, the F2 LED will light up in white. Picture below.

Now let's move the joystick up and down to its extreme positions.When you complete that, the F3 LED will light up in white. Picture below.

F4 is the JOYSTICK's knob calibration.We turn it several times to the right and to the left to the extreme positions.When you complete that, the F4 LED will light up in white. Picture below.

F5 test is the T-BAR's calibration. Move the T-BAR to its extreme positions. Picture below.

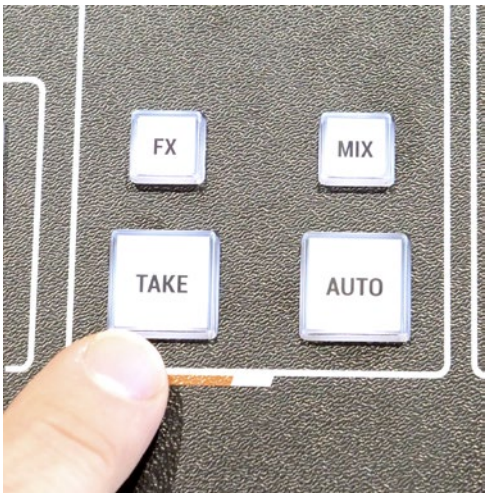
After several movements, all the LEDs will go out. This way, the keyboard has been calibrated and has returned to its normal operation mode.

25

Test of adjusting the brightness of the keyboard's backlight

Simultaneously press the following buttons: SINGLE, LOOP and LOCK like picture bellow.

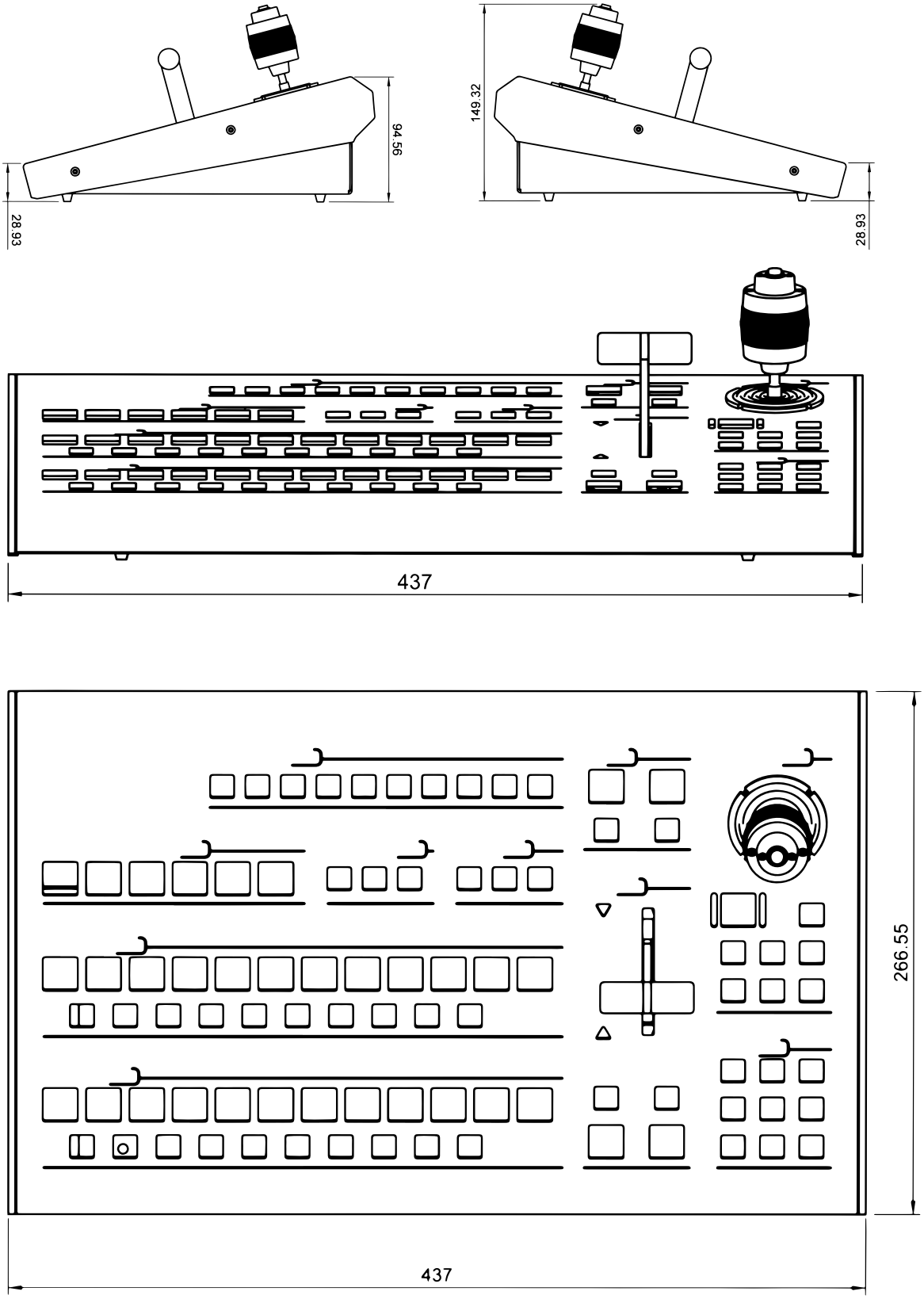
The keyboard shows the current brightness of the keys. Pressing TAKE key several times decreases the backlight's brightness. AUTO key increases brightness of the keys. Picture below



When an appropriate value is set, exit the mode by pressing LOCK key.The keyboard returns to its normal operation mode.

26

MVPKey-100 dimensions



All measurements in millimetres (mm)

27

MVPKey-100 specification

MVPKey-100 Specifications

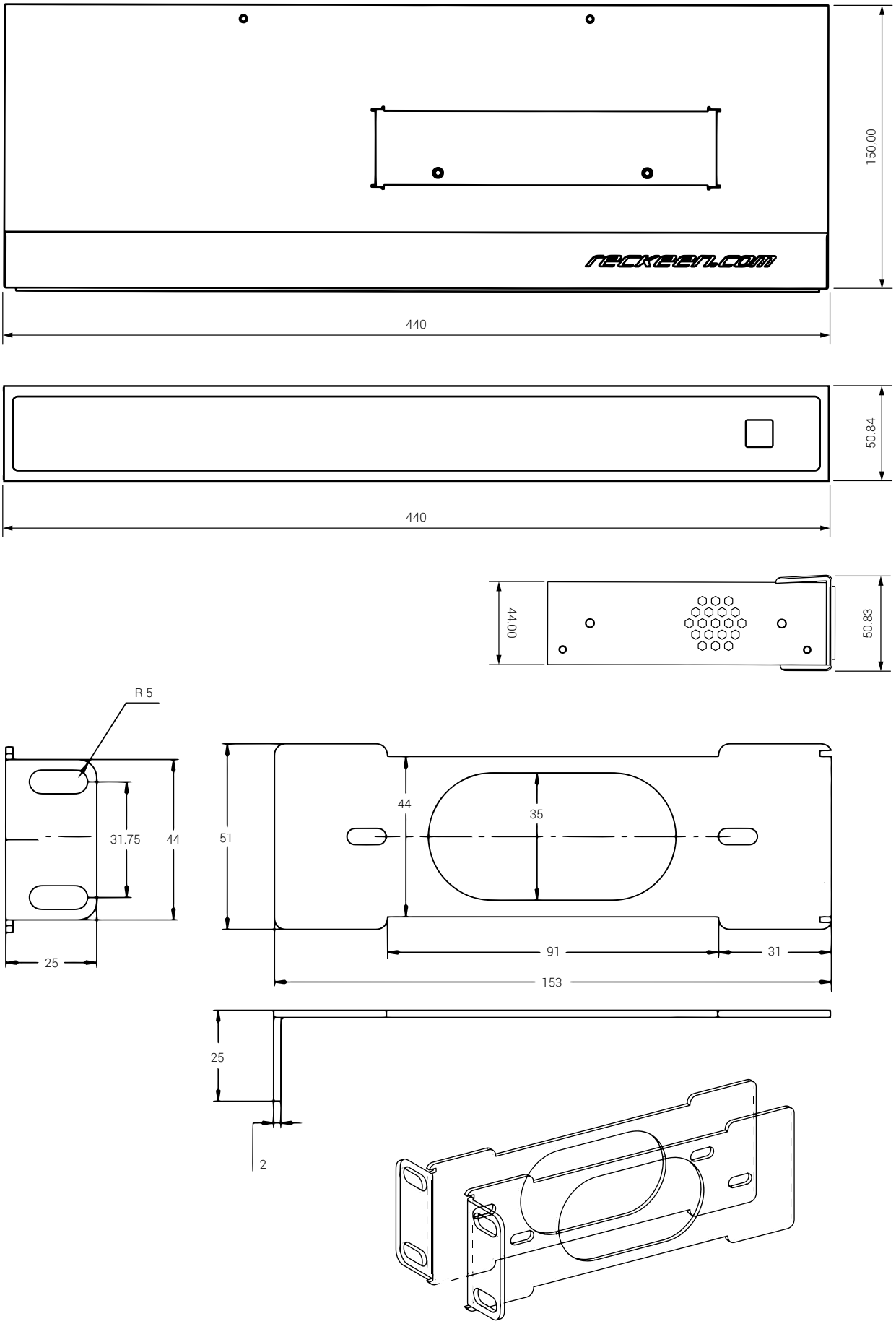
Communication Interface	RS-232
Baud Rate	38400
Power	DC12V
Power Consumption	12W
Working Temperature	0 °C ~ +40 °C
Storage Temperature	-20 °C ~ +60 °C
Relative Humidity	≤ 90% (non-condensation)
Net Weight	2,850 kg
Accessories	RS-232 Transmission Cable DC In Power Adaptor

MVPKey-100 Accessory List

No	Item	Qty
1	MVPkey100 Unit	1
2	DC 12V power adaptor	1
3	USB stick with user manual	1
4	RS cable	1

28

MVP-100 specification


150.00
reckeen.com
440
50.84
440
44.00
50.83
R 5
31.75
44
25
51
44
35
91
31
153
25
2

Inputs

- **Input A**
  - SDI
  - QUAD SDI
  - HDMI
  - 4xSDI
  - CLONE
- **Input B**
- SDI
- QUAD SDI
- HDMI
- 4xSDI
- CLONE
- **Genlock**
  - On
  - Off
- **Genlock termination**
  - On
  - Off

Outputs

- **Output format**
  - 720p50
  - 720p59
  - 720p60
  - 1080i50
  - 1080i59
  - 1080i60
  - 1080p25
  - 1080p29
  - 1080p30
  - 1080p50
  - 1080p59
  - 1080p60
- **SDI 3G OUT**
  - Type A
  - Type B

- **OUTPUT ASSIGNMENT**
  - SDI Out 1-8
  - IN 1-8, PGM, PRV

Transitions

- **MIX RATE**
  - VALUE 0 - 5
- **FTB RATE**
  - VALUE 0.25 - 5
- **WIPE FX**
  - ORIENTATION
    - HORIZONTAL
    - VERTICAL
    - DIAGONAL TOP
    - DIAGONAL BOTTOM
- **DIRECTION**
  - NORMAL
  - REVERSE
- **SOFTNESS**
  - NONE
  - MEDIUM
  - HIGH
- **RATE**
  - VALUE 0.25 - 5
- **FRAME LIMIT**
  - None
  - 720
  - 1080
- **AUDIO**
  - MIX
  - FOLLOW VIDEO
- **ANIMATION TRIGGERS**
  - WINDOW 1 - 8
    - FALLING
    - RISING
- **STATUS**

- FW
- GENLOCK
- FPGA

MVP-100 Accessory List

No	Item	Qty
1	MVP-100 Unit	1
2	DC 12V power adaptor	1
3	USB stick with user manual	1
4	Power cable	1
5	Reckeen holder T4K-K1U-03-01	2
6	Fastening screw for the holder M4x6 Imbus, black finish	4

© Copyright 2018 Reckeen.
All rights reserved. 'Reckeen' is registered trademark.
All other company and product names may be trade marks of their respective companies with which they are associated.