



XEX 100

INSTRUCTION MANUAL

ver. 1.3.1118

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The software described herein is governed by the terms of a separate user license agreement. Reckeen is not liable and will not compensate for any lost recordings or streamings made to your Reckeen 3D STUDIO or LITE, external recording media, or recording devices or any relevant losses, including when recordings are not made due to reasons including your Reckeen 3D STUDIO or LITE failure, or when the contents of a recording are lost or damaged as a result of your Reckeen 3D STUDIO or LITE failure or repair undertaken to your Reckeen 3D STUDIO or LITE. Reckeen will not restore, recover, or replicate the recorded or streamed contents made to your Reckeen 3D STUDIO or LITE, 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

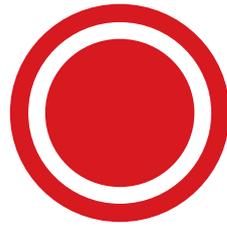
SYMBOL FOR THE MARKING OF ELECTRICAL AND ELECTRONIC EQUIPMENT INDICATING SEPARATE COLLECTION: For Customers the countries within the EEA. EEA: European Economic Area, which comprises the EU member States plus Norway, Iceland and Liechtenstein.

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.

2



Control Panel VKEY 100

The VKey100 control panel stands for ergonomics, high performance, premium craftsmanship and style. Reckeen VKey100 Control Panel – Precise control over real-time video operations for professional use.



Reckeen VKey100 Control Panel – Precise control over real-time video operations for professional use. With Reckeen VKey 100, you can have control over multiple functions of the Reckeen 3D or LITE Studio. 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:

- Power Supply 12V / 500mA - 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

- 91 LED illuminated button - 91 LED illuminated buttons for heightened visibility of control surface activity.



Power Supply 12V / 500mA - safe power supply voltage.



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



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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.



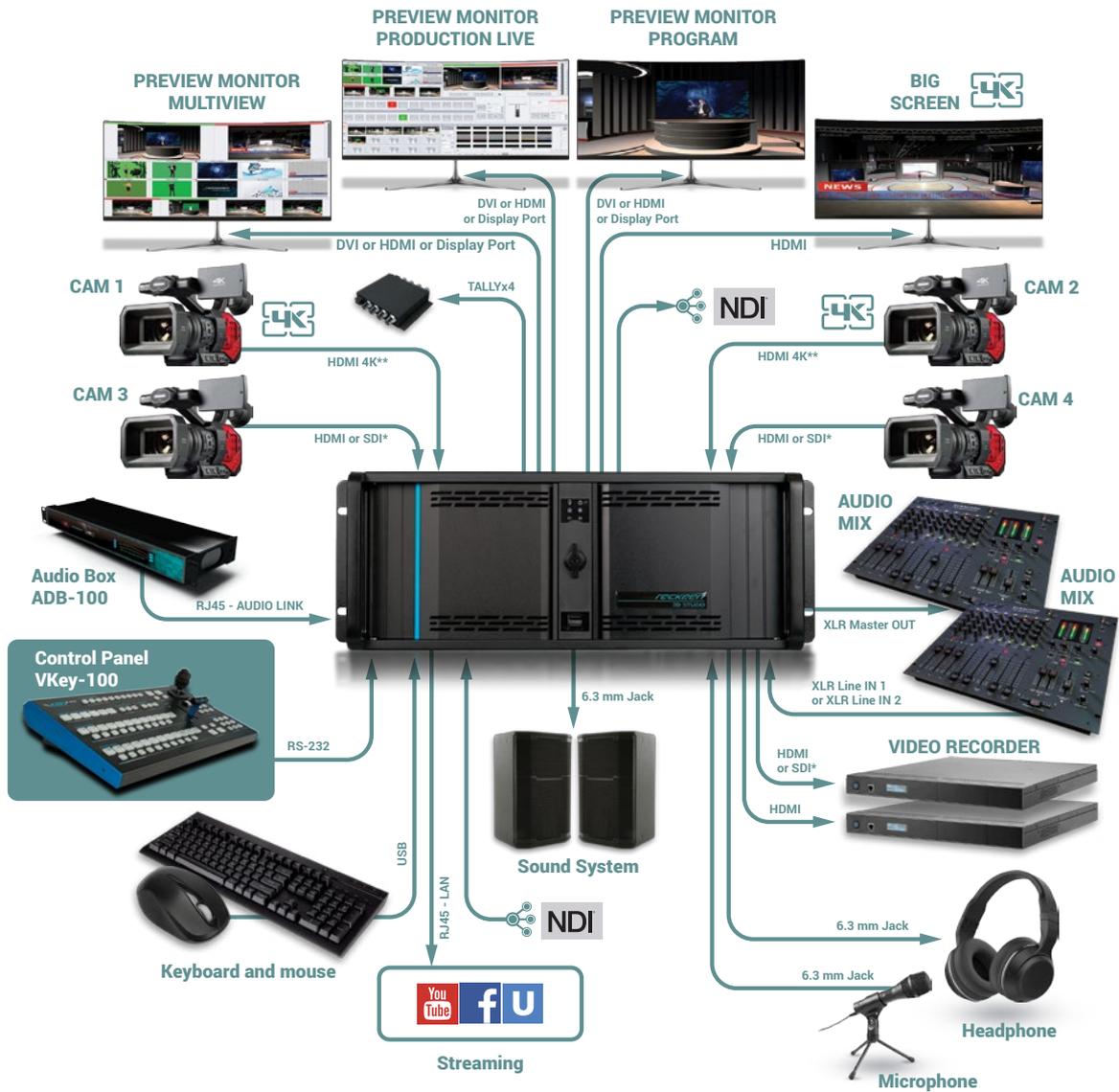
Mechanical adjustment of the T-bar resistance - it ensures a smooth and precise forward and backward movement of the T-bar handle.



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



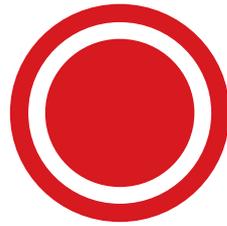
70 LED illuminated buttons for heightened visibility of control surface activity.



*SDI connectors only in Reckeen Studio version with HDMI-SDI card
 **Virtual LITE studio offers a Full HD resolution.
 By purchasing additional License Key, You can upgrade it to 3D Studio &LITE with 4K resolution.

You can control the Reckeen 3D system with the VKey-100 control panel, or/and with a standard PC keyboard.

3



How to connect Keyboard
VKey-100 to the Reckeen
system

The full set of configurations includes:

- Vkey100 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 input / output card. Connect the other end of the cable to the keyboard's port. Screw in the locking screws. Picture below.



Use a proper power supply adapter used in different types of electrical networks. Select the appropriate adapter and insert it into the power plug. Move it forward until you hear a click. Picture below.



First connect the power supply plug to the VKey 100 keyboard power socket and bolt the locking screw. Picture below.



Next connect the power supply unit to the electrical outlet. Picture below



Now you can safely set the Reckeen system switch to position 1 and then turn on the power using the VKey 100 switch.



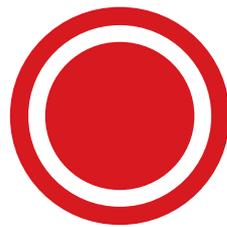
Due to the system's specific nature of operation and capacity, we suggest using a maximum of two FULL HD streams, i.e. 1080p60.

If we want to use also other inputs as NDI, we should broadcast a stream with a reduced resolution, 720p for example. To receive the NDI stream, we have to select one of the inputs.

In the Reckeen system, it is possible to replace the physical input of the camera or video stream from the tray with the NDI signal.

We will choose CAMERA 4 input and press NDI button. On the right, a button with three dots appears. After pressing it, a window shows up in which we can choose NDI stream. Picture below.

4



Test and calibration of the
V-Key 100 keyboard

In the first step turning the keyboard on by switching the power button to position 1. The appropriate buttons will light up for a moment.

In order to perform the keys' illumination test, a proper sequence has to be performed. The following buttons have to be pressed simultaneously: DELEGATION A, DELEGATION DSK 1 and LOCK like the picture below.

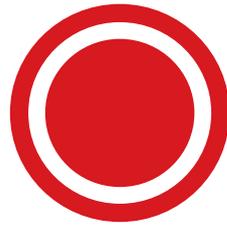


After this pressing, the LOCK and DELEGATION DSK 1 buttons are blinking. It is possible to check the backlight of all buttons. Let's press the keyboard keys one by one, in any order. The first time you press a key, it lights up in white. A second press makes the key light up in its function color. Red, green or orange - depending on its application. Picture below.



You can exit the test mode by pressing LOCK key. The keyboard will return to its normal operation mode.

5



Calibration of Joystick and T-Bar

Simultaneously press the following buttons: DELEGATION A , DELEGATION DSK 2 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.



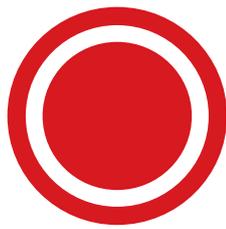
F4 is the JOYSTICK's knob calibration. We turn it several times to the right and to the left to the extreme positions. When you complete that, the F4 LED will light up in white. Picture below.



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.



Test of adjusting the
brightness of the keyboard's
backlight

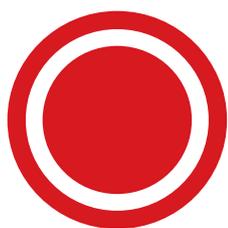
Simultaneously press the following buttons: DELEGATION A, DELEGATION B and LOCK like picture bellow.



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

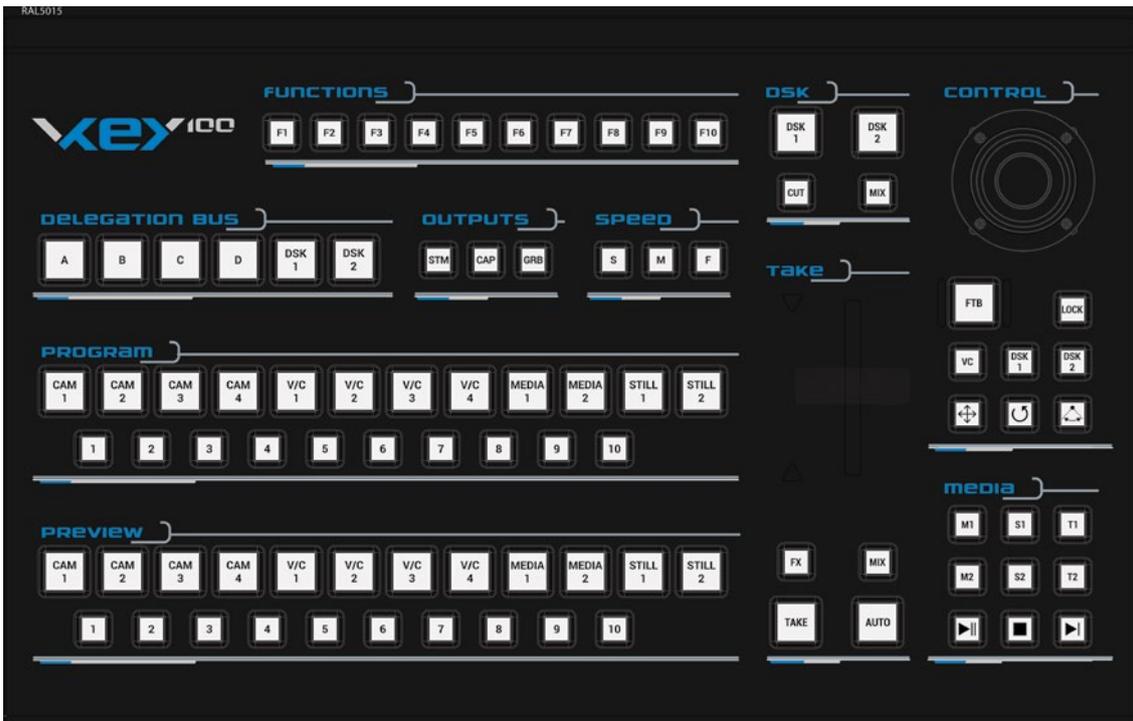


When an appropriate value is set, exit the mode by pressing LOCK key. The keyboard returns to its normal operation mode.

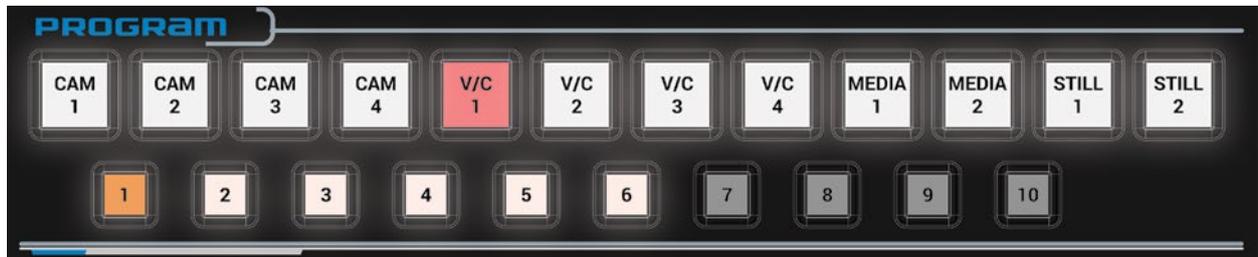


How to use v-key100
keyboard

V-KEY100 Keyboard. Picture below:



In the central part you can find a main mixer. The first row of buttons, backlit in red, stands for PROGRAM channel, live on the air.

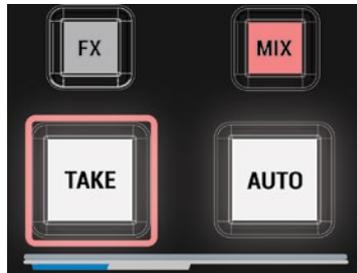


The second row of buttons is the PREVIEW channel, where you prepare the material. It is backlit in green.

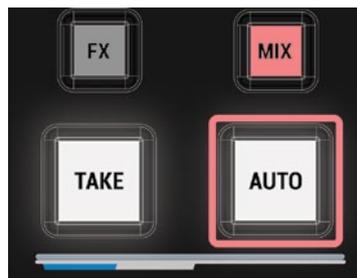


State of the keyboard keys reflects the state of the Reckeen application.

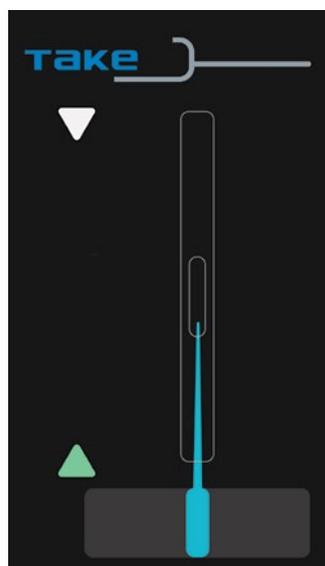
A transition between video channels can be performed with TAKE function. This is an immediate transition. In this case, the selected items on the Program and Preview mixers switch their places.



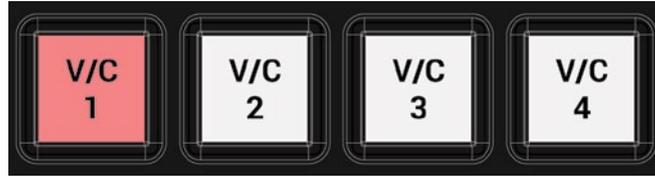
The second method is a transition with the use of AUTO. It is a smooth transition with a time set in the application. After its use, the T-BAR's motion is reflected in the application. And a smooth change between PROGRAM and PREVIEW channels takes place.



The third option is to use the T-BAR manually. A lit up green arrow indicates that the T-BAR is in its extreme position. After moving to the next extreme position, another arrow will light up. The PREVIEW channel will smoothly transition to the PROGRAM channel.



You can control the camera shots using the VC buttons. It is possible to highlight shots in the application after selecting an appropriate video channel. Press a button, for example PROGRAM channel's VC 1.



In the application, VC 1 tab will be highlighted in red.

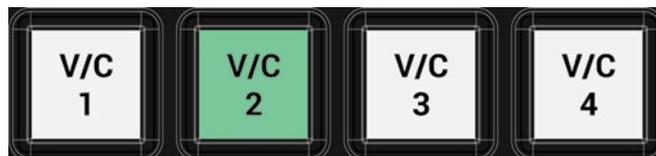


PROGRAM channel shots will appear next to it. There are 15 possible shots in a given VC, first 10 of which can be found on the keyboard.



In the default NEWS studio, 6 shots have been programmed, so the same number of buttons is currently backlit on the keyboard in the PROGRAM shots section. After pressing one of the buttons, a virtual camera makes a transition to a given shot in accordance with an application mode set, e.g. linear or curved at the speed of 5. A smooth transition to the next point is made. After this movement, the button lights up permanently in orange.

The same can be done in the PREVIEW channel. Let's press one of the VC buttons.



In the application, the tab will change its color to green.



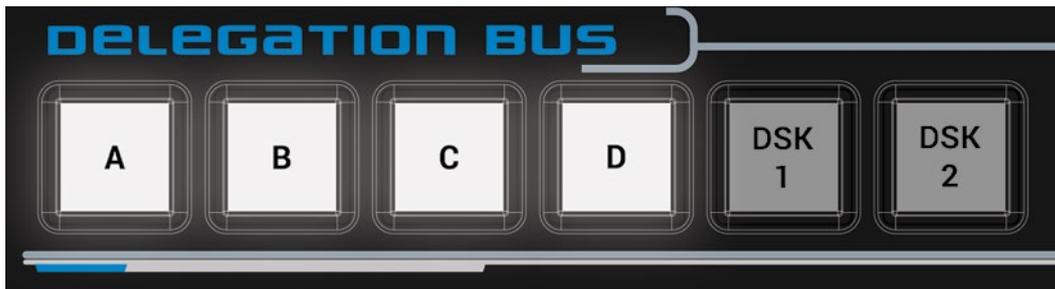
In the window, you can see PREVIEW channel shots. Press one of the buttons to change the shot. The camera moves, this time in the PREVIEW channel. After this movement, the button lights up permanently

in orange.

You can also configure the sources in the studio. In the application, the ABCD mixer is used for that purpose.



On the keyboard, the DELAGATION BUS keys will be used.



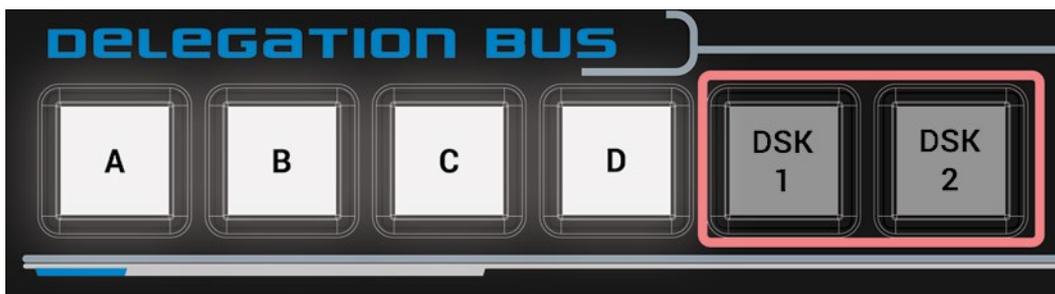
Hold down one of the layer buttons, A for example. Buttons enabling source selection for layer A will be illuminated in the PREVIEW channel.



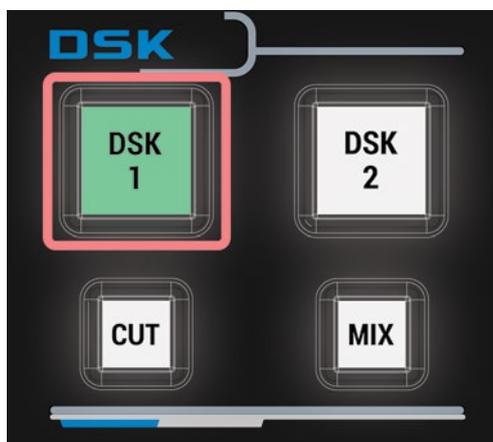
In addition, you can use the buttons on the media mixer.



When you select one of the buttons, the illumination of this layer's button changes in the application. Right next to ABCD layer buttons, you can find buttons for setting sources for DSK layers.



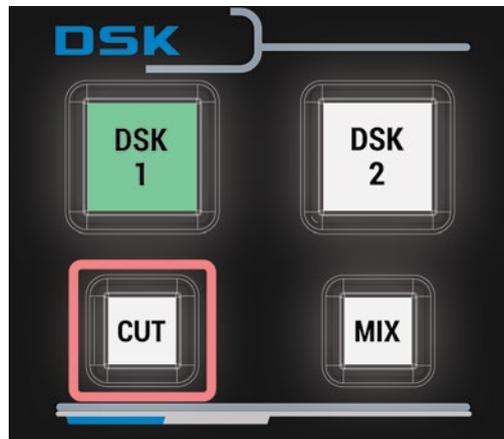
They are inactive, so first you have to enable one of the layers. Let's press a button, e.g. DSK 1.



It will be backlit in green, which means - visible in the PREVIEW channel. Now the DELEGATION BUS button is active. Hold down one of the Delegation BUS buttons, e.g. DSK 1. This time you choose a source for DSK 1 in the PREVIEW channel. You can also use the media mixer. Pressing the button brings the

keyboard to its normal operation mode.

Operating the DSK with the keyboard is analogous to the one using the application. It is possible to redirect a DSK source from PREVIEW to PROGRAM channel using CUT button.

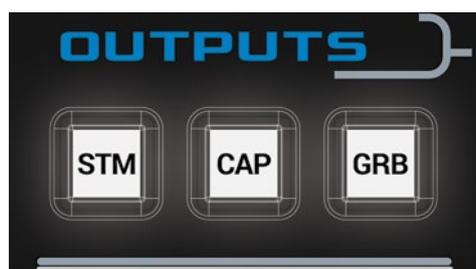


After pressing it, the source will immediately appear on the air. DSK 1 button lights up in red. DELEGATION DSK buttons are turned off. Another way to introduce a DSK source on the air is to use MIX button.



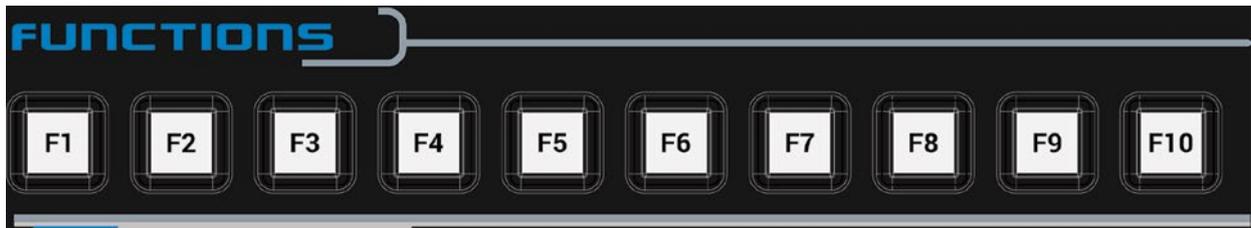
When a proper time is set in the application, the source will appear in a smooth transition from the PREVIEW to the PROGRAM channel.

There are three OUTPUT buttons next to DELEGATION buttons.



The first one - CAPTURE - allows you to record the PROGRAM channel to a video file on the disc. When pressed, it will light up in red. The recording starts and a corresponding button with a timer becomes highlighted in the application. The recording is stopped by pressing CAPTURE button again. The button is backlit in white until its next use. Similarly, you can use STM button to stream to a server. Next to it, you can see GRB button for creating a graphic image of the program output.

There are 10 function keys in the upper part of the keyboard. If they are not backlit in white, it means that none of these buttons have been programmed.



You can program them by going to MENU OPTIONS and CONFIGURATION. In the TRIGGER tab, you can assign them suitable functions, e.g. GRAPHICS OVERLAY. After programming two buttons, F1 and F3 for example, and exiting the configuration window, these programmed function keys will be backlit on the VKEY 100 keyboard.



You can use only one function key at a time. After pressing F1 key, it lights up in red as active. All the others are disabled. The function's deactivation occurs after pressing this button again. After switching it off, the programmed keys will light up in white.

It is possible to control a virtual camera with a JOYSTICK, both in the preview channel and on the air.



On the PROGRAM mixer, select a button, VC 1 for example.

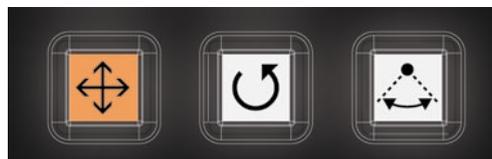


The corresponding tab will be highlighted in red in the application. This way, you choose virtual camera control with a JOYSTICK's use in the PROGRAM channel. In the Joystick control section, select VC mode, that is a virtual cameraman.



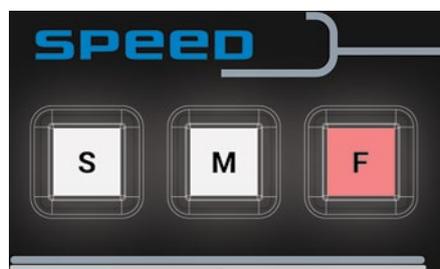
There are three options below.

The first one is MOVE. When you select this button, it lights up in orange.



With the JOYSTICK you can move the camera forwards, backwards, to the right and to the left.

The three F M S buttons are used to set three JOYSTICK speeds. After selecting, for example, F button (FAST), you get much faster camera movement with JOYSTICK's deflection from zero to its maximum than when choosing M option (MEDIUM) or S one (SLOW).



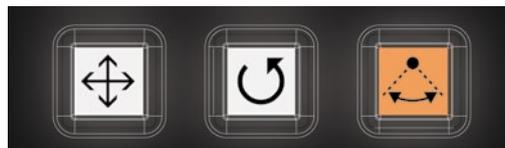
The speed mode also applies to the JOYSTICK's knob. With its rotation to the right you can raise the camera and lower the camera by turning it to the left.

ROTATION is the second option for moving the camera.



You can rotate the camera around its own axis (right, left, up and down) with a JOYSTICK. Using the knob in this mode, you move the camera forwards by turning the knob to the right and backwards by turning it to the left.

The third movement option is ORBIT.



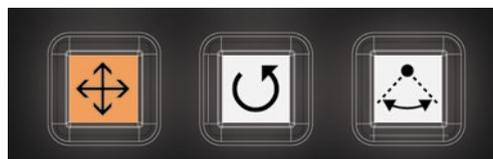
In this mode, you move the camera around a specific point in the studio with a fixed distance from it. By default, this is the 0.0 point. The point of orbit center can be changed in the CAMERA SETUP. Select and highlight any of the objects. After leaving the editor, the new center point of the orbit will be remembered.

When you select DSK option, you can set this layer's contents with a JOYSTICK. If the DSK button is backlit in green, then the button is active and can be selected.

There are two options at your disposal.



The first - positioning of DSK source.



With a JOYSTICK you can, for example, insert a picture (e.g. a station logo) anywhere in the PREVIEW. Use the knob to scale it. You reduce its size by turning the knob to the right and enlarge it by turning to the left.



If the DSK layer is transferred to the PROGRAM channel, that is on the air, then making adjustments with a JOYSTICK is no longer possible.

There is also a second option to use a JOYSTICK for DSK. Choose DSK and ROTATION option.



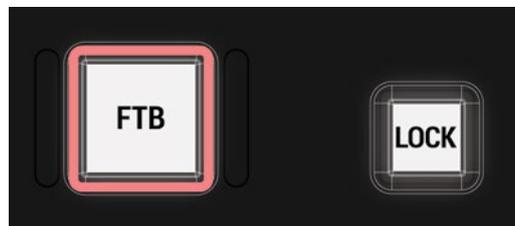
Using the knob, you can rotate the DSK layer's content to the right or to the left respectively.



You can find a LOCK button next to the Joystick. It allows you to completely lock the JOYSTICK. When it lights up in red, the JOYSTICK is protected against accidental use.



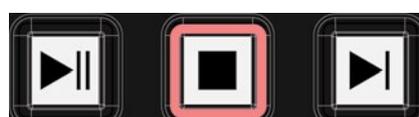
In emergency situations, it is possible to press the FTB button which will then light up in red. A black board will appear on the PROGRAM screen and the sound on the mixer will be muted. Pressing this button again restores the previous view and the sound mixer's state.



With the keyboard, you also have control over video and image trays. With a single button, e.g. M1, you can select MEDIA 1 video tray.



It will open automatically in the file preview application. The selected file can be stopped by pressing STOP button.



Play it again with PLAY button. When it is playing, you can PAUSE it with a button.



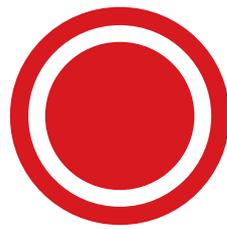
Press NEXT button to select the next file from the tray.

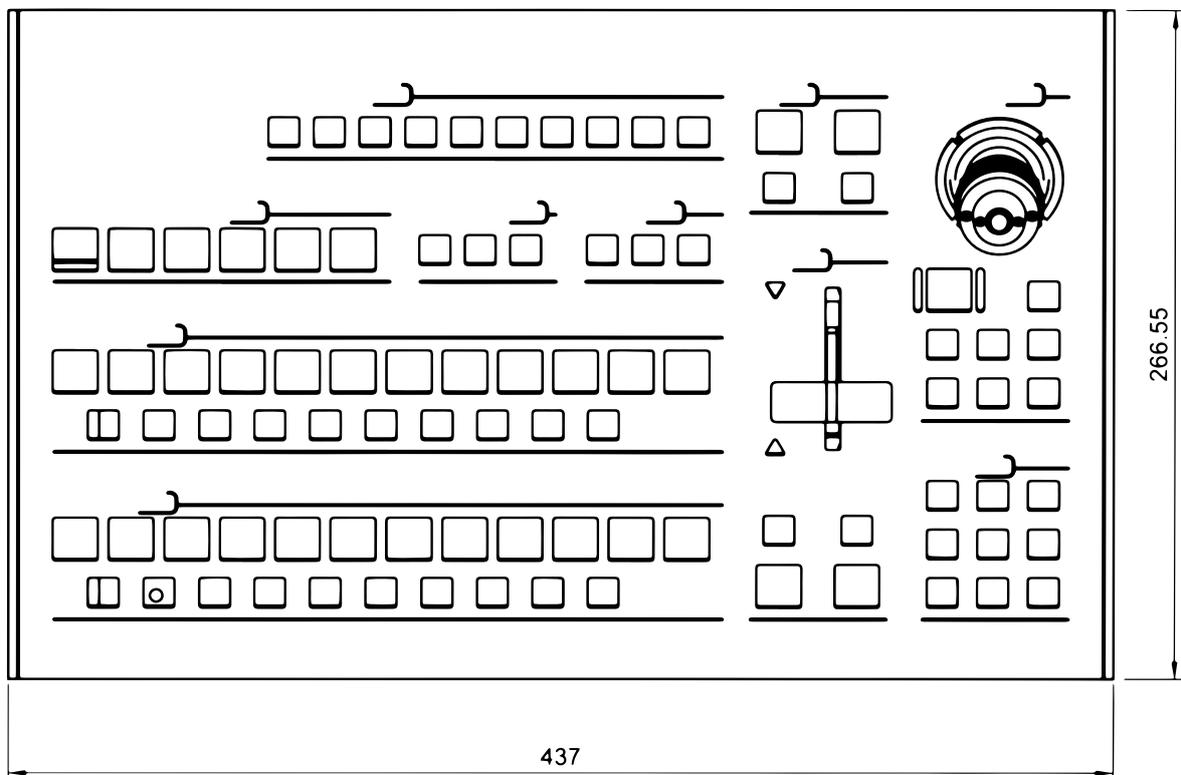
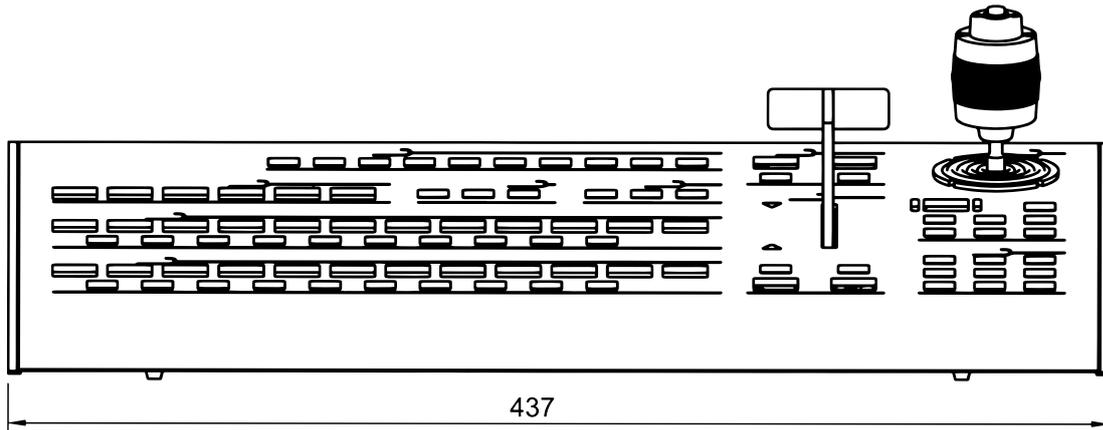
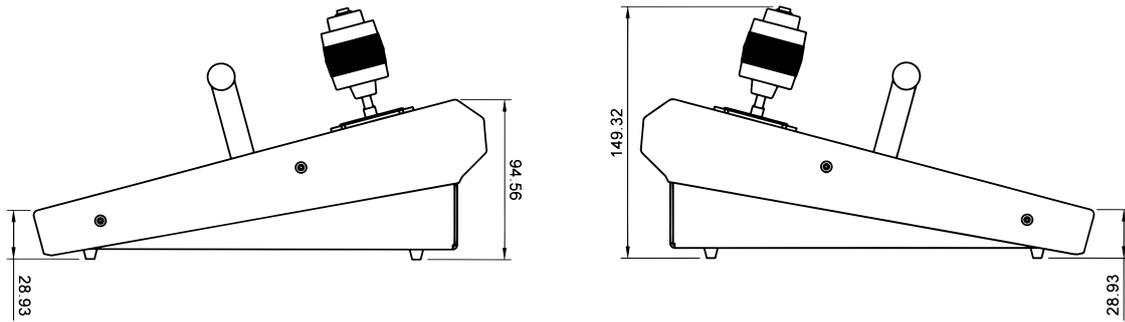


It will be highlighted in the window as ready to use. You open a new file by pressing PLAY button. In the same way, you can view STILL and TEXT image files or play a playlist sequence.



VKEY-100 specification





All measurements in millimetres (mm)

VKEY100 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

ADB100 Accessory List

No	Item	Qty
1	Vkey100 Unit	1
2	DC 12V power adaptor	1
3	USB stick with user manual	1
4	RS cable	1



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