KD60 User Manual

Multifunctional Switchboard Control Panel

HƆKATOV

Tips

Thank you for using our products.

In order to enable you to operate this machine proficiently as soon as possible, please carefully read the instruction manual we provide for you, from which you can obtain product safety precautions, product introduction and product usage methods and other related knowledge. After you have read the instruction manual, please keep it properly for future reference.

If you find any problems during the use of the product, please contact our relevant service personnel, thank you for your cooperation.

Precautions

1. Before connecting to the device, make sure the power supply voltage is correct. Only use the original uncut (unspliced) power supply that came with your keyboard.

2. If the product does not work properly, please contact your dealer. Never attempt to disassemble the device yourself. (We are not responsible for problems caused by unauthorized repair or maintenance.)

3. This product is an indoor device, please do not place this product in a place with water or humidity.

4. When transporting, the equipment should be packed in the original packaging.

5. Do not drop or subject the unit to physical impact.

6. Do not use strong detergent to clean the machine, when the dust is thick, wipe gently with a neutral detergent, and only for external cleaning.

7. Keep RJ-45 ports free of dust and moisture.

8. Avoid moving the machine between places that are too cold or too hot to avoid fogging inside the machine and affect its service life.

Affirm

1. We have done our best to complete and correct the content of this manual, but there will inevitably be errors and omissions, and we will not be responsible for any technical or printing errors in this manual.

2. The appearance of the product shown in this manual is for reference only, and may differ from the actual appearance of the device you purchased.

3. This instruction manual guides multiple product models, so it is not intended to be used alone for any specific product.

4. The display interfaces in this manual, illustrations, parameters, drawings and model value ranges may be different. Please refer to the actual product for details.

5. The content of this manual is subject to change without prior notice.

6. If there is a discrepancy with this manual due to software version upgrades, please refer to the software as the standard.

Features

● **Integrated hardware design:**

An easy-to-use fully embedded system with a streamlined structure, integrates director switching, audio adjustment and special effects transitions.

● **5.5″ LCD display:**

Comes with a built-in 5.5-inch LCD color screen, featuring a new UI menu design for clear parameter and status display. Switcher IP settings can be modified through the on-screen menu.

● **Multi-functional system control integration, tri-color crystal buttons:**

Supports basic corresponding functions of BMD ATEM Constellation and Television Studio series 1 M/E – 4 M/E products, with red, green, and orange-yellow tri-color crystal buttons. The buttons are surrounded by LCD displays indicating their functions.

● **High quality aluminum alloy T-BAR:**

Aluminum alloy high-quality T-BAR slider, combined with a nine-level LED light progress bar, the ergonomically designed T-shaped rod control can perfectly integrate a part of the transitional live performance.

● **Convenient and fast camera control functions:**

4D joystick PTZ control; supports VISCA Over IP control protocol.

● **Brand new N-Keys software customizable keys, more effects:**

New custom function upgrade, various function key layouts can be set according to usage scenarios, 20 keys can be customized with popular functions output through N-Keys software plugins for more gameplay options, 60 keys support custom signal source settings, N-Keys can set multiple custom key function layout options, intuitive LCD display screen, clearly showing the current key function.
Supports shortcut key operations for PREV TRANS, FTB, MACRO, and M/E functions;

● **Supports up to 80 channels of video signal source live switching:**

ATEM can support conventional 40-channel PGM+40-channel PVW live broadcast switching, and supports PGM and PVW selection of up to 80 signal sources through SHIFT key combination.

● **Custom knob adjustment function:**

Customize knob adjustment function through N-Keys software and Web backend interface, supporting multi-channel audio control, camera image effect settings.

● **Supports wired Tally interface and optional wireless Tally output functionality**

The unit is equipped with a built-in DB25 Tally interface and ANT antenna interface. The wired Tally supports a maximum of 12 Tally signal output functions, while the wireless Tally supports up to 16 Tally lights, with support for both red and green indicators.

● **Supports LAN interface connection for simple and convenient connectivity:**

Supports LAN connection to BMD ATEM Production Switchers and N-Keys software.
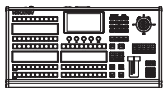
● **All aluminum alloy panel:**

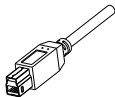Anodized aluminum alloy panel process shows product quality.

● **Intuitive WEB backend interface:**

Through remote access to the WEB background interface, drag and drop the operation function to the key position to customize the key function, and support device upgrades through the WEB background.
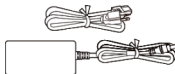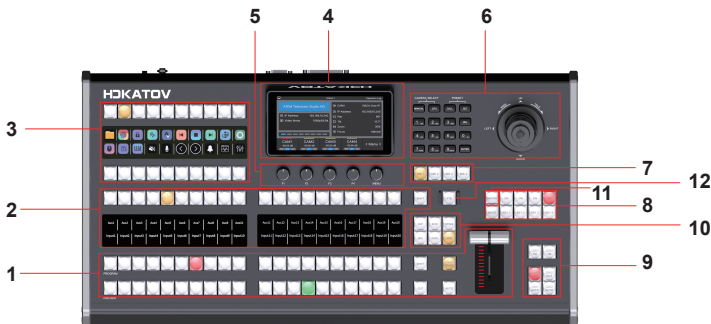
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Accessories

KD60 controller*1　　**USB3.0 cable*1**　　**Power cable*1**　　**User manual*1**

Product Diagram

The Frontboard：

Functions and partitions:

Area 1: 40-channel signal source switching buttons and switching T-Bar

PVW and PGM two lines of 20 buttons each by default mapping to 20 common signal sources, the common upper display screen shows the function definition of each key, through the SHIFT key combination, 20 signal sources can support up to 40 signal source switching. The operation mode is: long press the SHIFT key does not loosen (SHIFT light status is always on) , enter the SHIFT state, and then it becomes the 21-40 source (after 21-40 selection, release the SHIFT key to restore the 1-20 source), the upper display screen displays the key function definition synchro-nously switched to the 21-40 source function definition, release the SHIFT to exit the SHIFT state, and the upper display screen shows the key function definition synchronously switched to the 1-20 source function definition; When it comes to fader switching status, more than 20 channels of display will display the above light status of the SHIFT key at the same time, cancel the light to be on after releasing the SHIFT key, and restore the display key definition and key function to 1-20 sources.

Press the PREV TRANS button to perform a switch effect on the PVW.

Area 2: The layer source selection area of KEY/AUX/MACRO

Combine the Key1-4/ AUX/MACRO buttons to select the corresponding video source. The function of SHIFT is also to switch to 21-40 channel video sources.

Area 3:

Custom button area, 10 custom buttons on top and bottom, area 3/4 supports N-keys software on the PC and custom function buttons in the background of the Web page, and the key function or corresponding pattern is displayed on the screen around the button.

Area 4 / Area 5: 5.5-inch LED color screen and setting knob

Brand new UI design, 5.5 color screen display highlights the professionalism and grade of the product, the 5 knobs in area 6 are used for menu opening, page turning, parameter adjustment. In addition to the menu knob on the right, the other 4 knobs can be customized knob function.

Product Diagram

Area 6: Support PTZ control area;

It can realize automatic/manual focus buttons, knob focus adjustment in manual state, four-dimensional joystick that can realize zoom, up, down, left and right movement, and support Cam selection, preset set/call/delete (support double-digit input) through the numeric keypad. Camera selection method (manual, follow PVW, follow PGM)

Area 7: M/E functional area

Support up to 4 M/E switching, after pressing the corresponding M/E button, the light is always on, and then the whole panel switches to the corresponding M/E state, the default is 1 M/E light is always on.

Area 8: Upstream key functional area

It supports CUT and ON AIR functions for up to 4 upstream keys, and can also support the background layer setting function.

Area 9: Downstream key functional area

Supports up to two downstream key TIE, CUT, and AUTO functions.
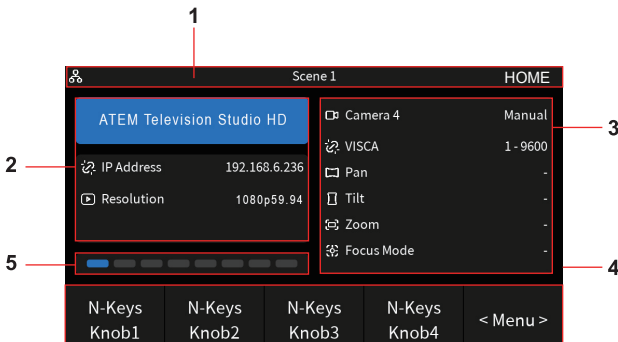
Area 10: Transition effect area

BMD ATEM's classic 6 transitions are fully supported, and the transition parameters can also be set via the 4-area and 6-area knobs.

Area 11: Macro definition function

The MACRO operation button is combined with the area 2 button to realize the macro call function.

Area 12: FTB button, black burst output control button.

Screen:

Area 1: Displays the network status and interaction status
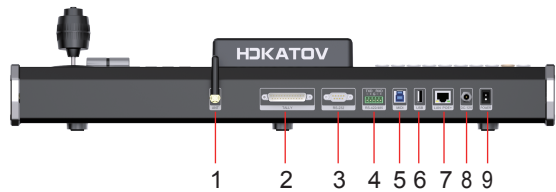
Area 2: Displays BMD switcher related information

Area 3: Displays the control protocol, camera address, PTZ and other related status

Area 4: Displays the function parameters corresponding to the custom knob
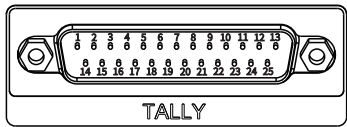
Area 5: Displays the current page

Product Diagram

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Interface：

1   2   3   4 5 6   7 8 9

1. Wireless Tally receiver (optional)
2. DP25 Tally port, Tally support DP25 through GPIO to control the camera TALLY light
3. RS232 serial port, support camera control connection
4. RS422/485 serial port, support camera control connection
5. reserved interface, no function
6. USB2.0 upgrade port
7. RJ45 network interface, support POE+ function
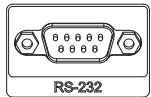8. DC12V power input interface
9. power switch

Interface Pin Definition

TALLY

Pin No.	Function	Pin No.	Function
1	PGB_TY01	14	PGB_TY01
2	PGB_TY02	15	PGB_TY02
3	PGB_TY03	16	PGB_TY03
4	PGB_TY04	17	PGB_TY04
5	PGB_TY05	18	PGB_TY05
6	PGB_TY06	19	PGB_TY06
7	PGB_TY07	20	PGB_TY07
8	PGB_TY08	21	PGB_TY08
9	PGB_TY09	22	PGB_TY09
10	PGB_TY10	23	PGB_TY10
11	PGB_TY11	24	PGB_TY11
12	PGB_TY12	25	PGB_TY12
13	GND		

TXD RXD
- + G - +
RS-422/485

Pin No.	RS-422 Function	RS-485 Function
1	TXD-	B-
2	TXD+	A+
3	GND	GND
4	RXD-	/
5	RXD+	/

RS-232

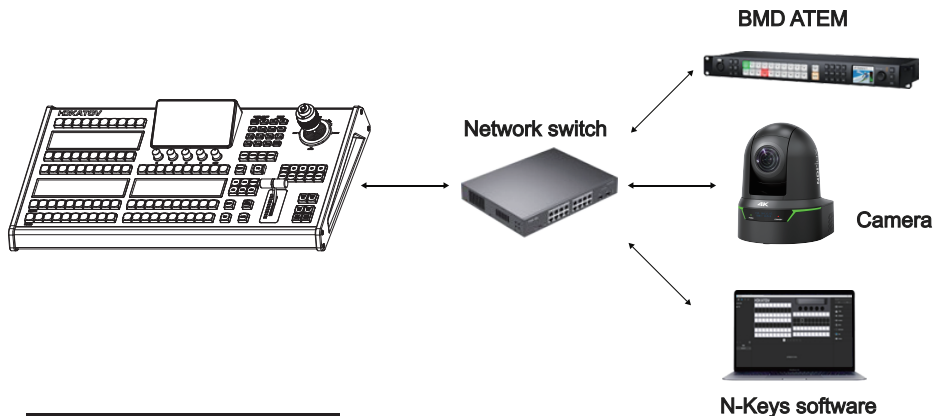| Pin No.	Function
1	NC
2	RXD
3	RXD
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

![HDKATOV]

Power Supply

Supply controller's power by the following methods

1.DC power adapter power supply (standard 12V)

2.POE power supply (connect the Ethernet IP port to the POE switch)

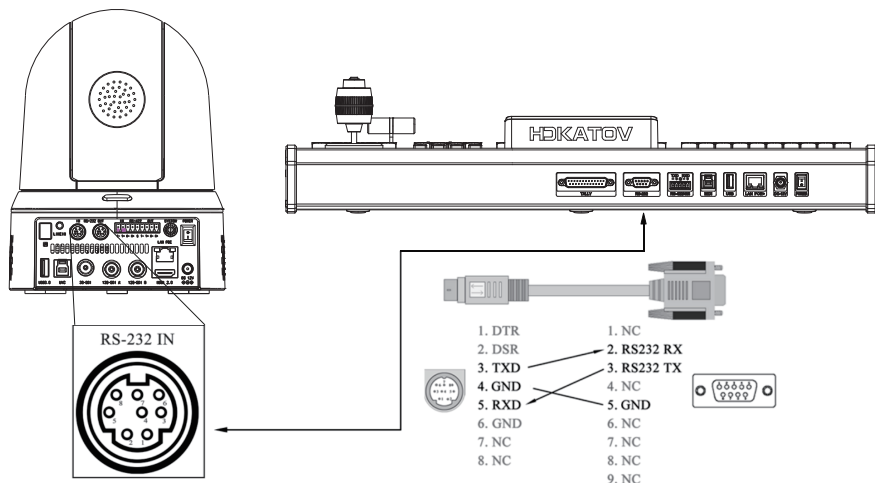**Use CAT6 cable, the maximum distance is 100 meters (802.3af)**

IP Connection

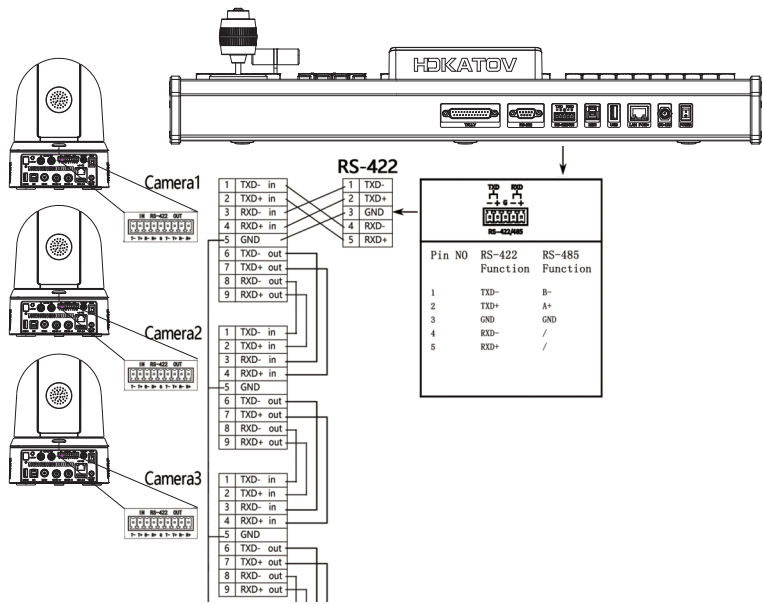**Connect "LAN" port of the controller to port on the Ethernet switch**

BMD ATEM

Network switch

Camera

N-Keys software

Serial Connection

1.Connect DB9 to RS232 8 pin mini port control cable for RS-232 connection RS232 interface picture

RS-232 IN

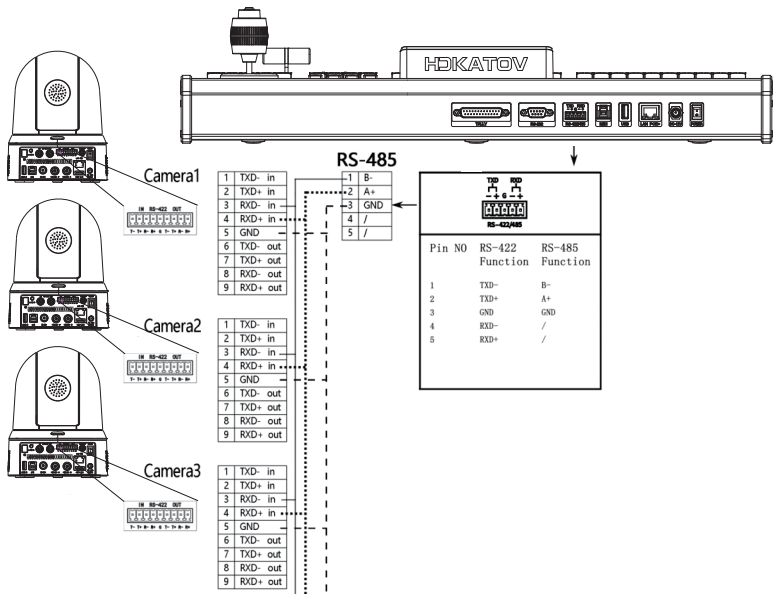| 1. DTR | 1. NC |
2. DSR	2. RS232 RX
3. TXD	3. RS232 TX
4. GND	4. NC
5. RXD	5. GND
6. GND	6. NC
7. NC	7. NC
8. NC	8. NC
	9. NC

Serial Connection

2.Phoenix connector for RS-422 connection

3.Phoenix connector for RS-485 connection

Keyboard OSD Menu Settings

- **Press the "MENU " knob to open /exit the keyboard menu**
- **Use the joystick to operate the keyboard menu**
  - **a. Move the joystick cursor up and down**
  - **b. Move the joystick to the right to enter the next menu/switch parameters**
  - **c. Move the joystick to the left to return to the previous menu/switch parameters**
  - **d. "HOME" button on the top of the ioystick to enter the next menu/ save and exit**
- **Use the "MENU" knob to operate the keyboard menu**
  - **a.Rotate the cursor clockwise down**
  - **b.Rotate the cursor counterclockwise up**
  - **c. Click the "MENU" knob to enter the next menu /save and exit**
- **Click the "F4" knob to return to the previous menu /exit without saving**
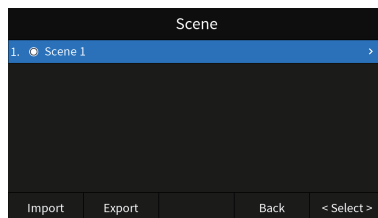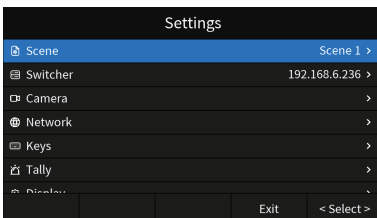
Keyboard Input

- **Each button with number and letter or symbol input, select the character you want to input by clicking the button continuously**
- **Adjust the cursor position by rotating the joystickleft or right or the "MENU" knob**
- **Case switching:**
  - **a. Click the button "1" twice continuously to switch to uppercase English**
  - **b. Click the button "1" three times continuously to switch to lowercase English**
- **"DELETE":delete a single character**
- **"ENTER","HOME" : save and exit**
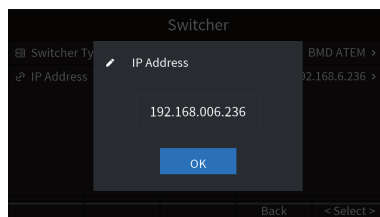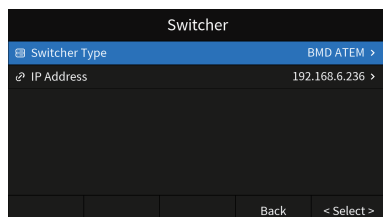- **"F4": do not save and exit**

Menu Settings

1. Scene

(1) One scene by default, up to 20 scenes can be added, it can add scenes and reduce scenes as needed.
(2) It can edit the scene name and scene overview, and it can only edit the scene name on the web side.
(3) Select the scene: Click the menu button to enter the keyboard menu, select the scene, click the select button to enter, and then see all the menus that have been added, it can rotate the selection button left and right to select the scene to the desired scene, press the selection button to select the scene, and click to return to the main interface after selecting the scene.

Settings	
🅐 Scene	Scene 1 ›
🖥 Switcher	192.168.6.236 ›
📷 Camera	›
🌐 Network	›
⌨ Keys	›
🎛 Tally	›
🖵 Display	›
	Exit < Select >

Scene	
1. ◉ Scene 1	›
Import Export	Back < Select >

2. Switcher

(1) Switcher type: Default BMD ATEM
(2) IP address: Click the select button to enter the IP address editing interface, combine the DEL button in the digital button area to edit to the desired IP address, and click the select button to save and use after editing the IP address.

3. Camera

(1) Camera list: 40 camera positions by default; Click the select button to enter the camera information editing interface, you can select the name, protocol, address, baud rate.. and other relevant information, after changing the required parameters, click the select button to save the changes and exit.

(2) Preset mode: two modes to choose: 10/255

Select the "10" mode: Only the preset bits of bits 0-9 can be set/call

choose"255" mode: Support set/call the preset position of the 0-255 bit

Set the preset: through the number button + the 'SET' button on the keyboard, select the number first and then press the 'SET' button, that is, set and save the preset position used by the number, and the upper right corner of the main screen will prompt you to save the ** preset position

Call the preset position: through the number button + the 'CALL' button on the keyboard, select the number first and then press the 'CALL' button, that is, call the selected preset position and the prompt information of calling the ** preset position will be prompted in the upper right corner of the screen.

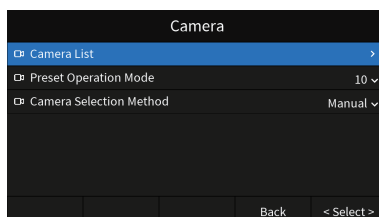(3) Camera selection method: Provide three ways to choose:

Manual: Setting method:

Click the menu button to enter the menu page to select the camera, click to select to enter the camera interface, you can see the relevant content of selecting the camera selection method, and select the "camera selection method" by rotating the selection button. It can also press the MANUAL button on the keyboard to light up the state, that is, the manual mode is selected; Then call the camera by digital Support 1-40 camera selection.

Follow PVW mode / Follow PGM mode: Setting method:

Click the menu button to enter the menu page to select the camera, click to select the camera interface, it can see the relevant content of the camera selection method, and select the 'camera selection mode' by rotating the selection button.

It can also be switched by clicking the "CFV" button in the numeric key area on the keyboard.
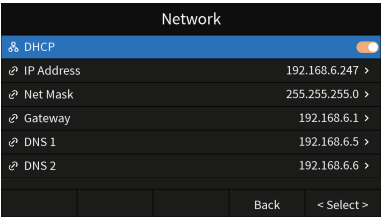

4. Network default IP address: 192.168.1.119

(1)DHCP is enabled: The IP address can be obtained by properly connecting the network cable for network control operations.
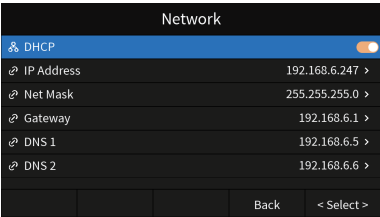
(2)Disable DHCP: It can edit any IP address (segment 0-255) by yourself, and you can also add up to 3 additional addresses to use.

Menu Settings

Network	
& DHCP	⬤
⌀ IP Address	192.168.6.247 ›
⌀ Net Mask	255.255.255.0 ›
⌀ Gateway	192.168.6.1 ›
⌀ DNS 1	192.168.6.5 ›
⌀ DNS 2	192.168.6.6 ›
	Back < Select >

5. Buttons

The current version does not support editing on the keyboard, and users can set it through the web terminal of the keyboard.
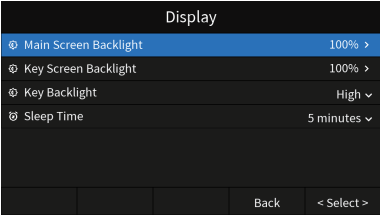
Network	
& DHCP	⬤
⌀ IP Address	192.168.6.247 ›
⌀ Net Mask	255.255.255.0 ›
⌀ Gateway	192.168.6.1 ›
⌀ DNS 1	192.168.6.5 ›
⌀ DNS 2	192.168.6.6 ›
	Back < Select >

6.Tally

Camera control: Turn on the switch to control devices with tally function

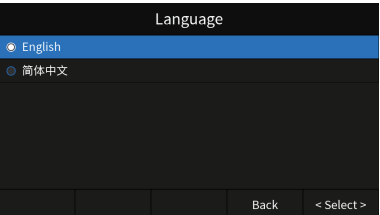| Tally	
Camera Link	⬤
	Back < Select >

7. Display

(1) Home screen brightness: It is to adjust the display brightness of the home screen (range 0-100), setting method: click the select button to pop up the current brightness pop-up, and then rotate the selection button to add or decrease the brightness, when the brightness is suitable, you can click the select button to save the current brightness value and exit the editing interface.
(2) Brightness of the button screen: It is to adjust the display brightness of the button screen (range 0-100), setting method: click the select button to pop up the pop-up window of the current brightness, and then rotate the selection button to add or decrease the brightness, and when the brightness is suitable, you can click the select button to save the current brightness value and exit the editing interface at the same time.
(3) Key brightness: It is to adjust the display brightness of the keys on the keyboard, and you can choose three ways: low, medium and high.
(4) Auto-sleep: It is turned off by default, and three sleep periods (5/10/30 minutes) can be turned on, and the sleep state can be turned off by pressing the keys at will.
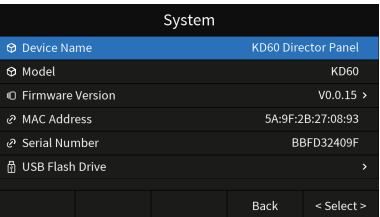
Menu Settings

Display	
⊘ Main Screen Backlight	100% ›
⊘ Key Screen Backlight	100% ›
⊘ Key Backlight	High ⌄
⊘ Sleep Time	5 minutes ⌄
	Back < Select >

8. Language
It can choose the display language

Language
◉ English
○ 简体中文
Back   < Select >

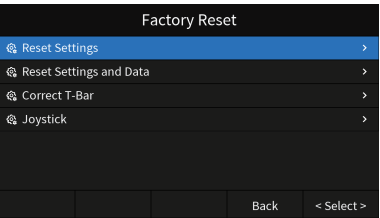## 9. System
(1) It can see the firmware version and name of the keyboard.
(2) U disk: Insert the U disk correctly through the U disk interface on the keyboard, and realize the function of upgrading the version and importing/exporting the keyboard configuration file after identifying the U disk.

System	
⊘ Device Name	KD60 Director Panel
⊘ Model	KD60
⊘ Firmware Version	V0.0.15 ›
⊘ MAC Address	5A:9F:2B:27:08:93
⊘ Serial Number	BBFD32409F
⊘ USB Flash Drive	›
	Back < Select >

10. Reset the device
(1) Restore/erase settings and data on the keyboard, i.e. factory reset
(2) Correct T-Bar: It can correct the T-Bar pusher of the keyboard according to the prompts
(3) Joystick correction: It can correct the joystick and push rod of the keyboard according to the prompts

Factory Reset	
⊚ Reset Settings	›
⊚ Reset Settings and Data	›
⊚ Correct T-Bar	›
⊚ Joystick	›
	Back < Select >

WEB Background Management

1、Connection method

Direct connection mode: connect the keyboard directly to the computer with a network cable. Network connection mode: connect the keyboard to the internet network, and access the network through a router or switch. Users can 1og in to the device through the browser. The computer must have the network segment where the keyboard IP is located. If the network segment is not added, you will not be able to log in. If the default IP address of the keyboard is 192.168.1.119, you need to add 1 network segment to the computer. The specific method is as follows :

Firstly open the computer network local connection properties window, select "Internet Protocol Version 4 (TCP/IPV4)" double click or click the property"Internet Protocol Version 4 (TCP/IPV4)" enter the properties window, click "Advanced" to enter advanced TCP/iP Set the IP address and subnet mask in the IP address field. After the addition is completed, click OK to complete the IP network segment addition. Users can add corresponding network segments according to the modified keyboard IP address.
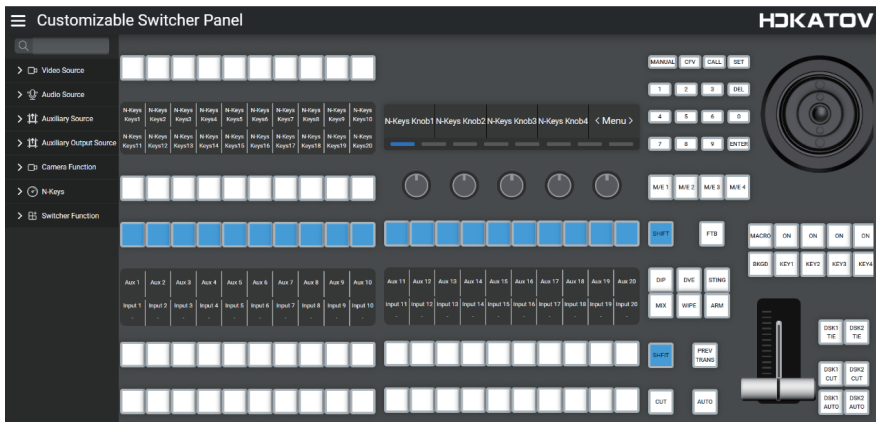
2、WEB login

WEB login:

Enter the device IP address in the browser address bar to default to 192.168.1.119, and press Enter to enter the web client login interface. Enter "admin" in the [Username] field, "admin" in the [Password] field, and pass the verification to enter the background preview interface. Language selection: The selected language can be displayed at the bottom of the login interface.
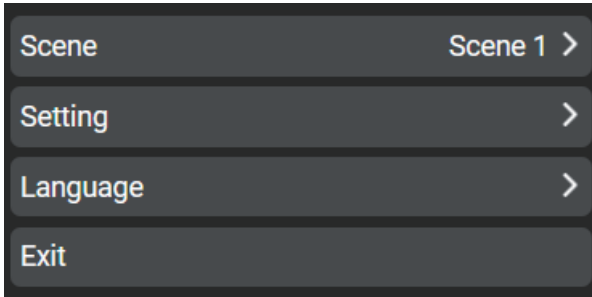
3、WEB management

The following is the web management interface after logging in

WEB Background Management

The upper left corner of the WEB page ▤ is the background settings, which can be clicked to switch scenes, change language and system-related settings
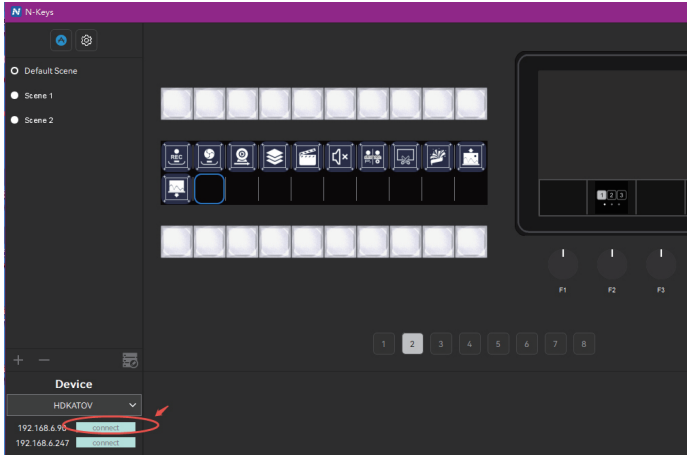

The left column is the key function selection area, and the right is the keyboard virtual button layout, which corresponds to the physical buttons one by one. The user can drag and drop the functions required by the left column to the corresponding virtual buttons on the right side by dragging and dropping, and the key area that supports drag and drop will be displayed in green, as shown in the following picture.

Keyboard Connection N-Keys Software Method

1. Connect the keyboard to the network correctly, keep it in the same network segment as the computer device that opens the N-Keys software, and ensure that the N-Keys software can search and connect to the keyboard device after it is opened.
2. After opening the N-Keys software, wait for the keyboard device to be connected after searching for it.

3.After the keyboard is successfully connected to the N-Keys software, it can see the status of the keyboard synchronization N-Keys software.
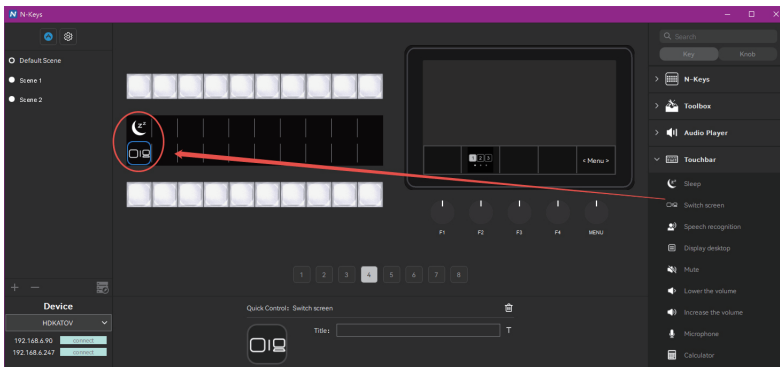

4.Click the corresponding function button on the keyboard to realize N-Keys related functions: the corresponding function of the keyboard button is shown in the figure.

5.Keyboard N-Keys protocol key function added:
(1) Select the button function area on the right side of the software.
(2) Click the selected function with the mouse, hold down the left button and drag it to the function button that needs to be customized, that is, the function is defined successfully (as shown in the figure)
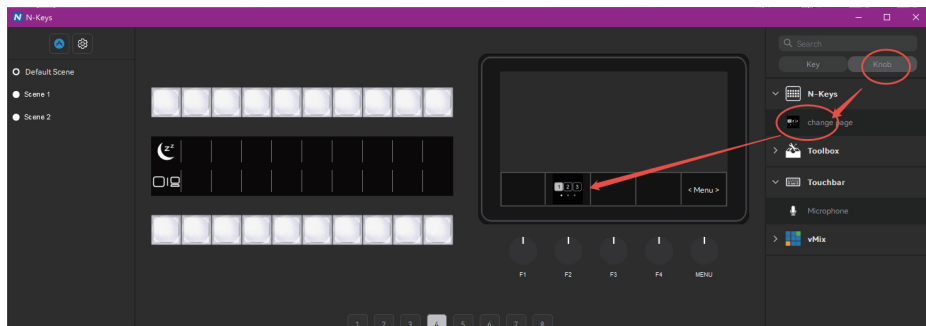

6.Keyboard N-Keys knob function added:
(1) Select the knob function area on the right side of the software.
(2) Click the selected function with the mouse, hold down the left button and drag it to the function button that needs to be customized, that is, the function is defined successfully (as shown in the figure)

7. N-Keys software function deletion: select the function, click the right mouse button to select delete

Specifications

Specifications	
Signal source	40-channel PGM+40-channel PVW
Transition control	Automatic transition, hard cut, T-Bar
LCD display	Set device parameters
Status Light	Red, Green, Orange-Yellow Tri-color Indicator Lights
Wired Tally	12-channel PGM+12-channel PVW
Wireless Tally	16 Tally lights(Optional)
Keyboard Parameters	
Joystick	Four-dimensional precision joystick
Button	Tri-color Crystal Buttons
Screen	5.5-inch LCD color display
T-BAR	Aluminum alloy high quality T-BAR faders
Knob	Three-dimensional knob supports scale rotation to adjust parameters
ATEM Related Functions	
Connection method	100M LAN, support POE 802.3af
Video control	40 channels inputs
Transition effects	MIX/DIP/WIPE/STING/DVE/ARM
Upstream key	4
Downstream key	2
FTB	Support
PREV TRANS	Support
MACRO	Support
BKGD	Support
SHIFT	Support
M/E	Support
AUX	Support
Clean Feed	Support
N-Keys Related Functions	
Connection method	LAN
Custom buttons	Support
Custom knob	Support
Touchbar	Support
Operation flow	Support
OBS Studio	Support
Input Voltage	Support
vMix	Support
YouTube	Support
Control	
Control interface	8.4W
PTZ Control	
PTZ control	Support
Control quantity	40 Channels
Camera control method	4D joystick
Aperture control	Support
Focus control	Support, Manual / Auto
Exposure control	Support, Manual / Auto
Exposure mode	Red gain value, blue gain value adjustment
Number of preset positions	9

Specifications

Number key mode	
Select camera	Support
Set preset position	Support
Call preset position	Support
Delete preset position	Support
Power supply	
Input voltage	DC 12V
Input Current	1.7A
Rated power	20.4W
POE power supply	Support
Other	
Usage environment	Indoor
Operating temperature	-10°C~40°C
Storage temperature	-20°C~60°C
Dimensions	565（L）*295（W）*130（H）mm（including rocker height）
Weight	6.8Kg