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BLACK BOX KV6224DPH Dual Monitor HDMI DP USB 3.1 KVM Switch User Guide

Contents

KV6224DPH Dual Monitor HDMI DP USB 3.1 KVM Switch

QUICK START GUIDE/USER MANUAL
KV6224DPH

**DUAL-MONITOR
HDMI/DP USB 3.1
KVM SWITCH**

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QUICK START GUIDE

WHAT'S INCLUDED
Your package should include the following items. If anything is missing or damaged, contact Black Box Technical Support at 877-877-2269 or info@blackbox.com

- (1) Switch
- (1) 12V Power Supply with US, UK, EU, and AU adapters

INSTALLATION STEPS

1. Power up your KVM Switch by connecting the external power adapter to it.
2. Connect the shared USB keyboard, mouse, two monitors, speaker/headphone and microphone to corresponding ports on console section of the KVM Switch.
   NOTE: The two left-side white USB ports are for keyboard and mouse and two blue USB 3.1 ports are for other USB devices.

FIGURE 3-1. KV6224DPH – REAR VIEW

3. Connect each KVM PC port to a computer, using one HDMI 2.0 video cable (male-to-male) and one DP 1.2 video cable (male-to-male), one USB cable (type A to type B), and one audio and mic combo cable (male-to-male).
4. Connect each of your USB devices to the USB hub ports (on the left). You can now begin to use the KVM switch.

OPERATION COMMANDS QUICK REFERENCE CHART

OPERATION COMMANDS FOR HOTKEYS/FRONT-PANEL BUTTONS			
COMMAND	HOTKEYS1	FRONT-PANEL BUTTON	DESCRIPTION

Select PC Port2 (Jointly select PC port/ hub port control/ audio and mic, if binding is enabled)	Scr-Lock, Scr-Lock + "X" X = 1–4 PC port Number	Press the corresponding button to select the active PC port.	Select the active PC port (Jointly select PC port/ hub port control/ audio and mic, if binding is enabled)
Select Hub Port Control2 (Jointly select PC and hub port control, if binding is enabled)	Scr-Lock, Scr-Lock +"Fx" Fx = F1–F4 (Fx is a Function Key) x = 1–4 for Hub port number	Press the button to toggle the specific PC + USB hub port control. (It works only if PC port/ hub port control binding is enabled.)	Select the PC port that control all USB hub ports (Jointly select PC and hub port control, if PC/hub port control binding is enabled)
Select Audio and Mic Port 3 (Jointly select PC port and audio and mic, if binding is enabled)	Scr-Lock, Scr-Lock +"Fy" Fy =F5–F6 (for 2-port) or F5–F8 (for 4-port) (Fy is a Function Key) y = 5–6 (for 2-port) or 5–8 (for 4-port) for Audio and Mic number	–	Select the active audio and mic port (Jointly select PC and audio and mic port, if binding is enabled)
Bind PC and Hub Port Control Switching2 [Default]	Scr-Lock, Scr-Lock + "Z"		Enable the binding of PC port and hub port control (Once this feature is enabled, any pc and/or hub port control switching is bound together) (factory default)
Unbind PC and Hub Port Control Switching2 [Default]	Scr-Lock, Scr-Lock + "X"		Disable the binding of PC port and hub port control switching

Bind PC and Audio and Mic Switching3 [Default]	Scr-Lock, Scr-Lock + "Q"		Enable the binding of PC port and audio and mic switching. (Once this feature is enabled, any PC and/or audio and mic switching is bound together) (factory default)
Unbind PC and Audio and Mic Switching3 [Default]	Scr-Lock, Scr-Lock + "W"		Disable the binding of PC port and audio and mic
Previous PC port2 (Jointly select PC/ hub port control, if binding is enabled)	Scr-Lock, Scr-Lock + "" (Arrow Up)		Select the previous connected PC port (Jointly select PC/ hub port control, if binding is enabled)
Next PC port2	Scr-Lock, Scr-Lock + "" (Arrow Down)		Select the next connected PC port (Jointly select PC/ hub port control, if binding is enabled)
Previous PC port	Scr-Lock, Scr-Lock + " " (Backspace)		Toggle between the previous port and current port
Beep Sound On/Off	Scr-Lock, Scr-Lock + "B"		Toggle on/off the beep sound

Define Hotkey Preceding	Scr-Lock, Scr-Lock + "H" + "y" y=Scroll Lock, Caps Lock, ESC, F12, Num Lock	Press and hold down last button (Button 2) till two beeps, release the button, then press (y)	Select the hotkey preceding sequence among 5 alternative keys
Autoscan	Scr-Lock, Scr-Lock + "S"		Autoscan through every connected port for quick screen browsing of each port (scan delay = 5 sec.)
Autoscan with Programmable Delay	Scr-Lock, Scr-Lock + "H" + "z" z = 1>10', 2>20',3>30', 4>40', 5>50', 6>60', 7>70', 8>80', 9>90', 0>100'		Autoscan with a user-defined delay time within a range of 10 to 100 seconds
Stop Auto Scan	Press any key on keyboard	Press any button	Terminate Auto scan activity
DisplayPort Link Training	Scr-Lock, Scr-Lock+"P"		Toggles DisplayPort Link Training ON/ OFF

NOTES:

1. The USB keyboard hotkeys allow you a faster and broader control for your KVM switching operation in addition to the
front-panel button. If you have configured a hotkey preceding sequence other than two consecutive scroll locks, here you
should change your hotkey sequence accordingly. (For preceding sequence key configuration, please refer to "Define Hotkey
Preceding Sequence" in above table.)

2. When the binding of PC and USB hub port control switching is enabled by the hotkey sequence: ScrLk + ScrLk + Z, any PC
and hub port control switching are bound together. To remove this binding, use the hotkey sequence: ScrLk + ScrLk + X.

3. When the binding of PC and audio and mic switching is enabled by the hotkey sequence: ScrLk + ScrLk + Q, any PC and

audio and mic switching are bound together. To remove this binding, use the hotkey sequence: ScrLk + ScrLk + W.

1. SPECIFICATIONS

TABLE 1-1. SPECIFICATIONS

SPECIFICATION KV6224DPH

Number of Ports (4)

Number of Consoles (2)

PC Keyboard/Mouse Connectors (4) USB Type B female

PC Video Connectors (4) HDMI 2.0 female, (4) DisplayPort 1.2 female PC Audio/Mic (8) 3.5-mm audio/mic Jack female Console Keyboard Connector (1) USB Type A female

Console Mouse Connector (1) USB Type A female

Console Monitor Connector (1) HDMI 2.0 female, (1) DisplayPort 1.2 female USB Hub Ports (2) USB 3.1 Type A female (5 Gbps data transfer rates) PC Selection Pushbuttons/Hotkeys

Beeper Yes

PC Port LEDs 4 (Green)

Hub Port LEDs 4 (Red)

Digital Display Resolution 3840 x 2180 @ 60 Hz

Keyboard and Mouse Emulation Yes (TTU)

Autoscan Delay Time 10 to 60 sec.

Power Adapter 12 VDC, 3 A

Weight 2.6 lb. (1.2 kg)

Dimensions 2.6″ H x 3.9″ W x 9.9″ D (6.6 x 10.0 x 25.3 cm) Safety/Emissions FCC, CE

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CHAPTER 2: OVERVIEW

2. OVERVIEW

2.1 INTRODUCTION

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The KV6224DPH 4-Port Dual-Monitor HDMI 2.0/DisplayPort 1.2 USB 3.1 (5 Gbps data transfer rates), Audio KVM Switch is designed specifically for sharing two 4K monitors between four multimedia computers with dual-monitor HDMI/DP display. It is the perfect solution for computers using mixed DisplayPort/HDMI graphics cards.

With KV6224DPH, you can fully control four dual-monitor PCs using only one keyboard, mouse and two 4K monitors; essential for saving valuable desktop space.

This dual-monitor HDMI/DisplayPort KVM switch supports two monitors at 3840 x 2160/4K 60 Hz resolution for maximum convenience in adapting to your display requirements.

True Transparent USB Emulation Technology allows complete versatility in dealing with the advanced functional requirements of today's keyboards and mice. From gaming mice/keyboards to advanced business mice/keyboards, users will appreciate what this technology can do for them.

Share all your USB peripheral devices with ease using the separate built-in 2-port USB 3.1 hub (5Gbps data transfer rates) between each connected computer. The USB hub automatically switches the connected USB peripheral to the selected computer saving you the cost of adding additional peripherals.

Independent audio switching lets users freeze audio while simultaneously working on a different system. With 3.5 mm stereo audio input for each channel, two-way audio support for speakers and microphone is available; perfect for sound design or editing applications.

2.2 FEATURES

- Mixed input/output; ideal for mixed video graphics cards
- 4-port dual monitor HDMI 2.0/DisplayPort 1.2 USB 3.1 KVM switch with audio and microphone switching
- (2) additional USB 3.1 hub ports (5 Gbps data transfer rates) for sharing high-speed USB devices
- True transparent USB (TTU) emulation technology full driver supports advanced USB keyboards and mice
- USB 3.1/USB 2.0/USB 1.1 specification compliant (up to 5 Gbps data transfer rates)
- Supports digital video resolution up to 3840 x 2160 at 60 Hz (dual monitors)
- Independent/simultaneous PC/hub/audio and mic port selection
- Multi-platform support for Windows® XP/7/8/10, Linux®, and Mac® OS
- Switching by front-panel pushbuttons and keyboard hotkeys

- Two-channel stereo audio
- Low power consumption
- Firmware upgradable via USB port
- TAA compliant

2.3 WHAT'S INCLUDED

Your package should include the following items. If anything is missing or damaged, contact Black Box Technical Support at 877-877-2269 or info@blackbox.com

- (1) Switch
- (1) 12V Power Supply with US, UK, EU, and AU adapters

CHAPTER 2: OVERVIEW

2.4 HARDWARE DESCRIPTION

KV6224DPH

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FIGURE 2-1. FRONT PANEL OF THE KV6224DPH

 4, 5 6B 6A 2B 2A 2B 2A 2B 2A 2B 2A

11 7 7 3 3 1 3 3 1 3 3 1 3 3 1 3 3 FIGURE 2-2. BACK PANEL OF THE KV6224DPH

CHAPTER 2: OVERVIEW

TABLE 2-1. KV6224DPH COMPONENTS

NUMBER IN FIGURE 2-1 OR 2-2 COMPONENT DESCRIPTION 1 PC Keyboard/Mouse Connectors (4) USB Type B female 2A PC Video Connectors (2) HDMI female 2B PC Video Connectors (2) DisplayPort female

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3 PC Audio/Mic (8) 3.5-mm audio/mic jack female 4 Console Keyboard Connector (1) USB Type A female 5 Console Mouse Connector (1) USB Type A female 6 Console Monitor Connector (2) HDMI female, (2) DisplayPort female 7 USB Hub Ports (2) USB 3.1 Type A female 8 PC Selection Pushbuttons/Hotkeys 9 PC Port LEDs 4 (Green) 10 Hub Port LEDs 4 (Red)

CHAPTER 3: INSTALLATION

3. INSTALLATION

1. Power up your KVM Switch by connecting the external power adapter to it.

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2. Connect the shared USB keyboard, mouse, two monitors, speaker/headphone and microphone to corresponding ports on console section of the KVM Switch.

NOTE: The two left-side white USB ports are for keyboard and mouse and two blue USB 3.1 ports are for other USB devices.

FIGURE 3-1. KV6224DPH – REAR VIEW

3. Connect each KVM PC port to a computer, using one HDMI 2.0 video cable (male-to-male) and one DP 1.2 video cable (male-to-male), one USB cable (type A to type B), and one audio and mic combo cable (male-to-male).

4. Connect each of your USB devices to the USB hub ports (on the left).
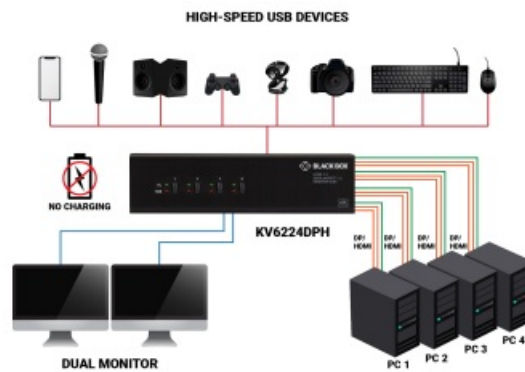
You can now begin to use the KVM switch.

FIGURE 3-2. CONNECTION ILLUSTRATION

CHAPTER 4: OPERATION

4. OPERATION

A keyboard hotkey sequence consists of at least three specific keystrokes: Hotkey sequence = [ScrLk]* + [ScrLk] * + Command key(s) * User-definable = SCROLL LOCK, CAPS, ESC, F12 or NUM LOCK

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Hotkey preceding sequence configuration: For users who want to use a preceding sequence other than two consecutive Scroll Locks, there is also one convenient way to configure it.

1. Press ScrollLock + ScrollLock + H, then two beeps will signal readiness for new preceding sequence selection (or Press and hold down the last front-panel button [Button 2 or Button 4] until you hear two beeps, then release the button.)

2. Select and press the key you would like to use as your preceding sequence (SCROLL LOCK, CAPS, ESC, F12 or NUM LOCK keys are available for selection) and you'll hear a beep for selection confirmation. Now you can use the new preceding sequence to execute your hotkey commands.

NOTE: Press each keystroke within a hotkey sequence within 2 seconds. Otherwise, the hotkey sequence will not be validated.

NOTE: Hotkey sequence = [ScrLk]* + [ScrLk] * + Command key(s)

* User-definable Preceding sequence = SCROLL LOCK, CAPS, ESC, F12, or NUM LOCK

TABLE 4-1. OPERATION COMMANDS FOR HOTKEYS/FRONT-PANEL BUTTONS

COMMAND HOTKEYS1 FRONT-PANEL BUTTON DESCRIPTION

Select PC Port2 (Jointly select PC port/ hub port control/ audio and mic, if binding is enabled)

Select Hub Port Control2 (Jointly select PC and hub port control, if binding is enabled)

Select Audio and Mic Port3

(Jointly select PC port and audio and mic, if binding is enabled)

Bind PC and Hub Port

Scr-Lock, Scr-Lock + "X"

X = 1–4 PC port Number

Scr-Lock, Scr-Lock +"Fx"

Fx = F1–F4 (Fx is a Function Key) x = 1–4 for Hub port number

Scr-Lock, Scr-Lock +"Fy"

Fy =F5–F6 (for 2-port) or F5–F8 (for 4-port) (Fy is a Function Key)

y = 5–6 (for 2-port) or 5–8 (for 4-port) for Audio and Mic number

Press the corresponding button to select the active PC port.

Press the button to toggle the specific PC + USB hub port control. (It works only if PC port/ hub port control binding is enabled.)

—

Select the active PC port (Jointly select PC port/ hub port control/ audio and mic, if binding is enabled)

Select the PC port that control all USB hub ports

(Jointly select PC and hub port control, if PC/hub port control binding is enabled)

Select the active audio and mic port

(Jointly select PC and audio and mic port, if binding is enabled)

Enable the binding of PC port and hub port control (Once this

Control Switching 2 [Default]

NOTES:

Scr-Lock, Scr-Lock + "Z" —

feature is enabled, any pc and/ or hub port control switching is bound together) (factory default)

1. The USB keyboard hotkeys allow you a faster and broader control for your KVM switching operation in addition to the front-panel button. If you have configured a hotkey preceding sequence other than two consecutive scroll locks, here you should change your hotkey sequence accordingly. (For preceding sequence key configuration, please refer to "Define Hotkey Preceding Sequence" in above table.)

2. When the binding of PC and USB hub port control switching is enabled by the hotkey sequence: ScrLk + ScrLk + Z, any PC and hub port control switching are bound together. To remove this binding, use the hotkey sequence: ScrLk + ScrLk + X.

3. When the binding of PC and audio and mic switching is enabled by the hotkey sequence: ScrLk + ScrLk + Q, any PC and audio and mic switching are bound together. To remove this binding, use the hotkey sequence: ScrLk + ScrLk + W.

CHAPTER 4: OPERATION

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 TABLE 4-1 (CONTINUED). OPERATION COMMANDS FOR HOTKEYS/FRONT-PANEL BUTTONS COMMAND HOTKEYS1 FRONT-PANEL BUTTON DESCRIPTION

Unbind PC and Hub Port Control Switching 2 [Default]

Bind PC and Audio and

Scr-Lock, Scr-Lock + "X" — Disable the binding of PC port and hub port control switching

Enable the binding of PC port

and audio and mic switching.

(Once this feature is enabled,

Mic Switching3 [Default] Scr-Lock, Scr-Lock + "Q" —

any PC and/or audio and mic switching is bound together) (factory default)

Unbind PC and Audio and Mic Switching 3 [Default]

Previous PC port2

Scr-Lock, Scr-Lock + "W" — Disable the binding of PC port and audio and mic

Select the previous connected

(Jointly select PC/ hub port control, if binding is enabled)

Scr-Lock, Scr-Lock + "" (Arrow Up) —

PC port

(Jointly select PC/ hub port control, if binding is enabled)

Select the next connected PC

Next PC port2 Scr-Lock, Scr-Lock + "" (Arrow Down) —

Previous PC port Scr-Lock, Scr-Lock + " "

port

(Jointly select PC/ hub port control, if binding is enabled)

(Backspace) — Toggle between the previous port and current port

Beep Sound On/Off Scr-Lock, Scr-Lock + "B" — Toggle on/off the beep sound

Define Hotkey Preceding

Scr-Lock, Scr-Lock + "H" + "y" y=Scroll Lock, Caps Lock, ESC, F12, Num Lock

Press and hold down last button (Button 2) till two beeps, release

the button, then press (y)

Select the hotkey preceding sequence among 5 alternative keys

Autoscan through every

Autoscan Scr-Lock, Scr-Lock + "S" —

connected port for quick screen browsing of each port (scan delay = 5 sec.)

Autoscan with

Programmable Delay

Scr-Lock, Scr-Lock + "H" + "z"

z = 1>10', 2>20',3>30', 4>40', 5>50',

—

6>60', 7>70', 8>80', 9>90', 0>100'

Autoscan with a user-defined delay time within a range of 10 to 100 seconds

Stop Auto Scan Press any key on keyboard Press any button Terminate Autoscan activity Training Scr-Lock, Scr-Lock+"P" — Toggles DisplayPort Link Training

DisplayPort Link

ON/OFF

NOTES:

1. The USB keyboard hotkeys allow you a faster and broader control for your KVM switching operation in addition to the front-panel button. If you have configured a hotkey preceding sequence other than two consecutive scroll locks, here you should change your hotkey sequence accordingly. (For preceding sequence key configuration, please refer to "Define Hotkey Preceding Sequence" in above table.)

2. When the binding of PC and USB hub port control switching is enabled by the hotkey sequence: ScrLk + ScrLk + Z, any PC and hub port control switching are bound together. To remove this binding, use the hotkey sequence: ScrLk + ScrLk + X.

3. When the binding of PC and audio and mic switching is enabled by the hotkey sequence: ScrLk + ScrLk + Q, any PC and audio and mic switching are bound together. To remove this binding, use the hotkey sequence: ScrLk + ScrLk + W.

APPENDIX A: REGULATORY INFORMATION A.1 FCC STATEMENT

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This equipment has been tested and found to comply with the regulations for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference 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 this Quick Installation Guide, 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/her own expense.

A.2 CE STATEMENT

This is a Class B product in a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

A.3 ROHS

This product is RoHS compliant.

APPENDIX A: REGULATORY INFORMATION A.4 NOM STATEMENT

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APPENDIX B: DISCLAIMER/TRADEMARKS B.1 DISCLAIMER

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Documents / Resources

QUICK START GUIDE/USER MANUAL **DUAL-MONITOR HDMI/DP USB 3.1 KVM SWITCH** BLACK B☰X	**BLACK BOX KV6224DPH Dual Monitor HDMI DP USB 3.1 KVM Switch** [pdf] User Guide KV6224DPH, Dual Monitor HDMI DP USB 3.1 KVM Switch, KV6224DPH Dual Monitor HDMI DP USB 3.1 KVM Switch, Monitor HDMI DP USB 3.1 KVM Switch, HDMI DP USB 3.1 KVM Switch, DP USB 3.1 KVM Switch, USB 3.1 KVM Switch, 3.1 KVM Switch, Switch

References

- ◈ **Global IT Products & Network Solutions Provider | Black Box**