NetworkTV

HDMI 4 x 1 Multivewer
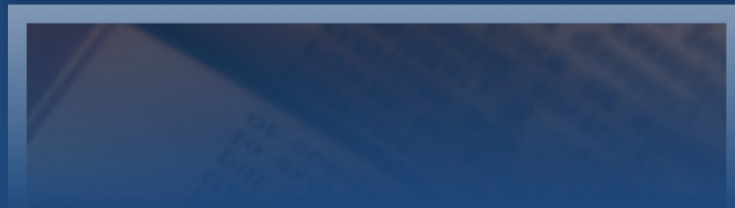
User Guide

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Product Pre-reading

Before using the product, please review the user manual carefully. The functions described in this version were firstly issued on Jan 2018. For any changes of functions and parameters since then, please refer to your dealers for the latest information.

Safety and Handling

This equipment has been tested and found to comply with part 15 of the FCC rules, which are introduced to provide reasonable protection against harmful interference in both residential and commercial installations. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

> ATTENTION: The Twisted Pair Extension technology works with unshielded twisted pair (UTP) or shielded twisted pair (STP) cables; but, to ensure FCC and CE compliance, STP cables and STP Connectors are required.

Warning: Failure to follow these safety instructions could result in fire, electric shock, or other injury or damage to product itself or other property. Read all safety information before using.

EU Disposal Information

The symbol below means that according to local laws and regulations your product and/or its battery shall be disposed of separately from household waste. When this product reaches its end of life, take it to a collection point designated by local authorities.

Warranty

Warrants this product against defects in materials and workmanship for a period of one year from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, at its option, repair or replace said products, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period.

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions, or if modifications were made to the product that were not authorized by manufacturer.

If a product is defective, please email your sales representative and ask for an Application Engineer to receive an RMA (Return Authorization) number. This will begin the repair process.

Introduction

The NTVPIPSW is a KVM multi-view switcher which allows switching between four HDMI sources together with USB signals and audio signals and also supports touch screen. There is a line in/microphone input, which could be mixed with source audio and there is an analogue audio output as well. As a USB2.0 switcher, it supports 2 standard USB devices shared by 4 computers. The NTVPIPSW can be controlled by keyboard hot keys as well as the front panel buttons with LED indicators showing switching modes.

Using the multi-viewer function, operators working on several independent PCs benefit greatly from the ability to use a single keyboard and mouse kit to roam across and control all 4 computers, without having to select or press any button. It supports a cascade for 5 units, so one operator could control 16 computers at the same time.

NTVPIPSW is the right choice for applications like the banking and financial sector, stock operation centres, computer gaming, boardrooms and broadcasting, in command and control rooms and other mission-critical applications where users need fast and accurate switching across multiple computers.

SKU Number: NTVPIPSW

Packing Contents

- 1 x NTVPIPSW KVM multi-viewer switcher
- 2 x Pieces of mount ears
- 6 x Pieces of screws for mount ear
- 4 x Pieces of rubber cushions
- 1 x DC 24V 3A power supply with universal plugs, US efficiency VI
- 1 x User manual

Features:

- HDMI 1.3 HDCP 1.2 and DVI compliant
- Standard USB2.0 protocol, 480Mbps bandwidth
- 4 HDMI inputs and 1 HDMI output
- Full HD resolution up to 1080P for HDMI sources
- Output resolution selectable between 1080P and 720P
- Supports fast switching and seamless switching
- Multi-view modes support 4 sources, 2 sources, 1 source layout
- Mouse and keyboard can roam across 4 computers without selecting or pressing any button
- Supports USB 1:4 switch, USB devices shared by 4 computers
- Supports audio 4:1 switch, line in/microphone input and mixer
- Support 3.5mm analogue audio output with mute ability
- Supports front buttons control and keyboard hot keys control
- Option for USB signals extends up to 100m
- Option for HDMI video with H.265 stream output for video over IP
- Streaming media support for seamless push to mainstream live platforms
- 24V 0.75A power supply with locker and universal plugs
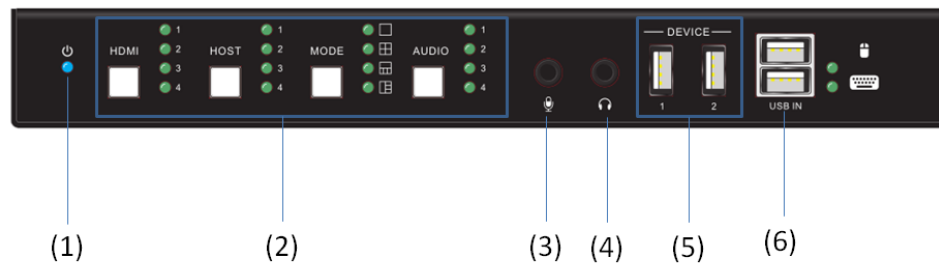
Installation Environment

When installing the extender DO NOT:

- Cover the vents
- Install into an area without adequate air ventilation
- Power on before connecting devices in-line
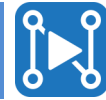
Panel Description

Front Panel

Picture 1. NTVPIPSW front panel

1. Power indicator: Solid blue when power up, off when there is no power.

2. Control buttons and indicators:

   - HDMI switch button to select different HDMI source with corresponding LED indicator.

   - HOST switch button to select different USB Host with corresponding LED indicator.

   - MODE switch button to select different multi-view mode with corresponding LED indicator.

   - AUDIO switch button to select output audio from different sources with corresponding LED indicator.

3. Microphone/line-in: external audio input, this audio coanbe mixed with source audio.

4. Analogue audio out: audio de-embedded from HDMI output, audio is mixed with source and microphone.

5. USB Device: Can be connected with USB flash disk, USB HDD, USB camera, USB audio device etc.

6. USB ports for control: These USB ports can be used by USB keyboard and mouse for control, keyboard must be connected to the up ports, mouse must be connected to the down ports.

Rear Panel
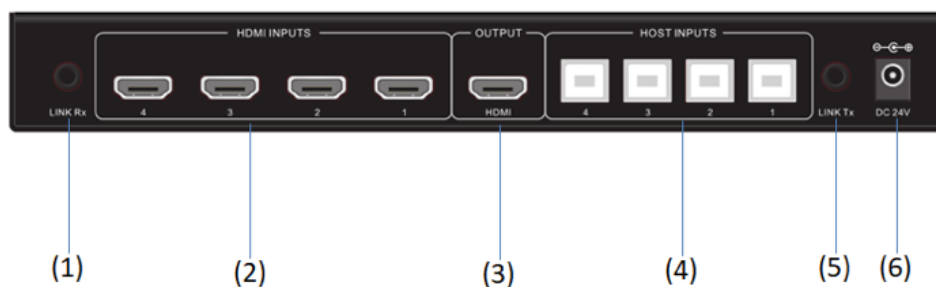
Picture 2. NTVPIPSW rear panel

1. Link Rx: Used to receive USB-HID data, connect to Link TX when cascading.

2. HDMI Inputs: 4 HDMI inputs, connect to HDMI video sources.

3. HDMI Output: Output of 4:1 video switcher and multi-viewer, connect to display.

4. HOST Inputs: USB Host inputs, connect to computers, servers, tablet computers, mobile phones, etc.

5. Link Tx: Used to transmit USB-HID data, connect to Link Rx when cascading.

6. DC 24V: Connect to DC 24V power supply.

Connection and Installation

Note: When installing this unit, do not install in an enclosed area or cover the vents. Doing so may result in damage to the product and/or area surrounding it and void the warranty. Here we use a 16x16 USB matrix switcher as a connection diagram example.
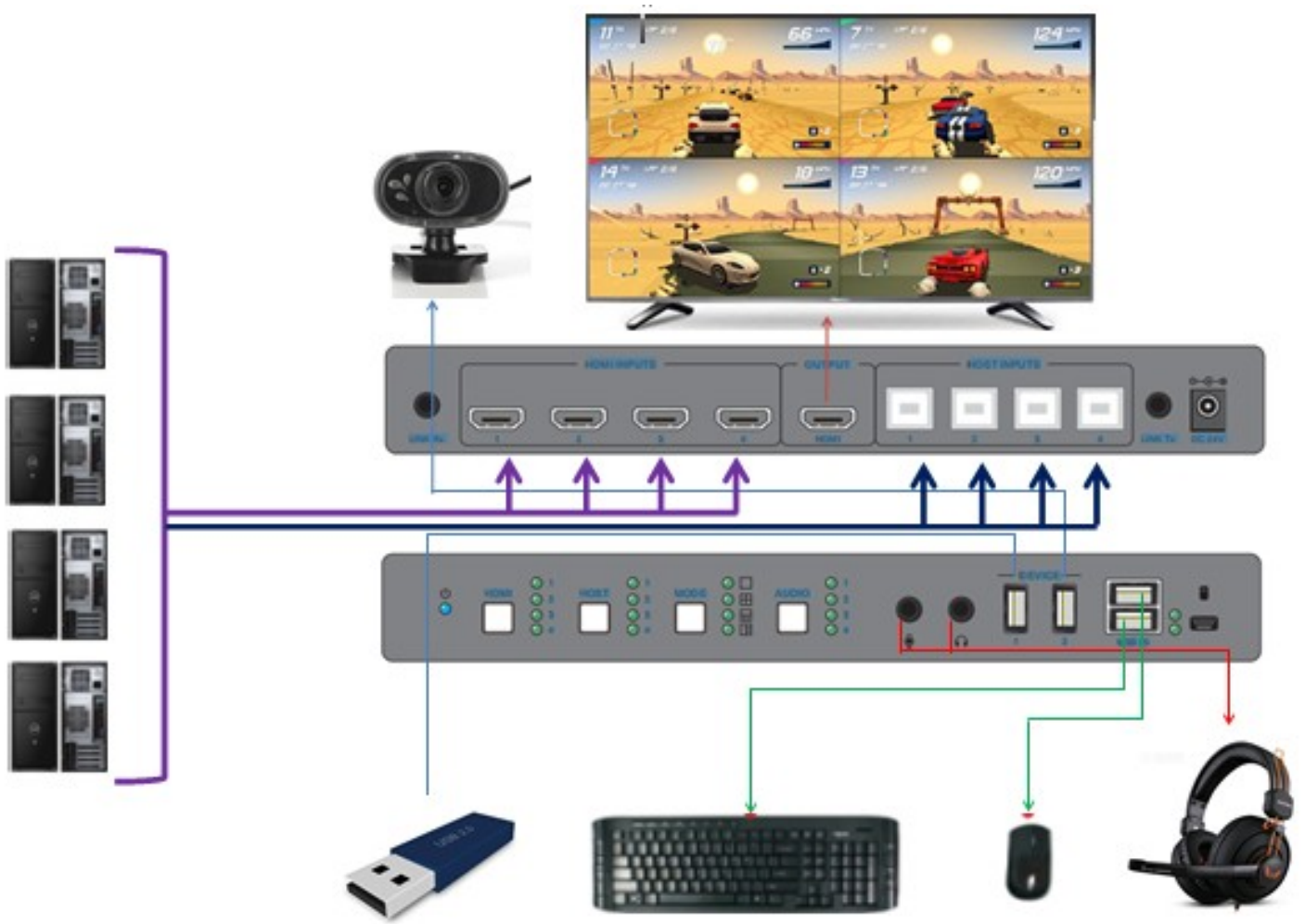
Picture 3. NTVPIPSW connection diagram

Specifications

USB	
USB Standard	USB2.0
USB bandwidth	480Mbps
USB Protocol	Standard Universal Serial Bus Protocol
USB connector	8 x USB type B for Host; 8 x USB type A for Device; 4 x USB type A for control 1 x USB type A for firmware update
Supported Host	PC, mini PC, mobile phone, Tablet PC, Apple Mac etc
Supported Devices	Mobile phone, USB flash disk, USB camera, USB microphone, USB Hard Disk Drive, USB Hub, USB wifi module etc
Video	
HDMI Standard	HDMI 1.3
HDCP Standard	HDCP1.2
Resolutions	1080p@23.98/24/25/29.97/30/50/59.94/60Hz, 1080i@50/59.94/60Hz, 720p@50/59.94/60Hz, 576p, 576i, 480p, 480i
VESA	1680x1050, 1600x1200, 1600x900,1440x900, 1400x1050, 1366x768, 1360x768, 1280x1024, 1280x800, 1280x768, 1152x768,1024x768, 800x600, 640x480
Color space	YCbCr, RGB
Chroma Subsampling	4:4:4, 4:2:2
Color Depth	8-bit, 10-bit, 12-bit
Audio	
Formats	PCM 2Ch, LPCM 5.1, LPCM 7.1, Dolby Digital, DTS 5.1, Dolby Digital Plus, Dolby TrueHD, DTS-HD Master Audio, Dolby Atmos
Sample Rate	32kHz, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz
Bit Rate	Up to 24-bit
Temperature	
Operating	32ºF~122ºF, or 0℃~50℃
Storage	-4ºF~140ºF, or -20℃~60℃
Humidity	20 ~ 90% non-condensing
Power	
Supply	Input: AC100-240V 50/60Hz, Output: DC24V 3A
Other	
Dimension HxWxD	
Weight	
Certification	
Power supply	CE, FCC, UL, RoHS, CCC
Product	CE, FCC

System Operation

A. Switching HDMI source

1. Pressing the HDMI button will switch the HDMI source from 1→2→3→4. The LED indicators will show the corresponding selected source. In multi-view mode, pressing the HDMI button will roll the space of 4 sources.

2. Press and hold the keyboard "Ctrl" key and press the number 1 key, the number 1 key will have the same function as the HDMI button on the front panel.
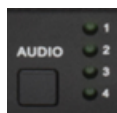
B. Switching USB Host

1. Pressing the HOST button will switch the USB Host from 1→2→3→4. The LED indicators will show the corresponding selected source.

2. Press and hold the keyboard "Ctrl" key and press the number 2 key, the number 2 key will have the same function as the HOST button on the front panel.

C. Switching Multi-view Mode

1. Pressing the MODE button will switch the Multi-view mode to different layouts. The LED indicators will show the corresponding layout selected.

2. Press and hold the keyboard "Ctrl" key and press the number 3 key, the number 3 key will have the same function as the MODE button on the front panel.

D. Switching Audio

1. Pressing the AUDIO button will switch the audio source from 1→2→3→4. The LED indicators will show the corresponding selected source.

2. Press and hold the keyboard "Ctrl" key and press the number 4 key, the number 4 key will have the same function as the HDMI button on the front panel.

Note: in A when the source is full screen mode, switching HDMI will switch the corresponding audio to HDMI and analogue output.

Keyboard control

A. Switch Control

Press and hold "Ctrl" key   and then press number 1 key   to switch video source.
Note: 1. when the input is full screen, pressing these keys will switch the source with corresponding audio.
  2. when it's in multi-view mode, pressing these keys will switch the source layout, audio will not be switched.

Press and hold "Ctrl" key   and then press number 2 key   to switch USB Device to different Host.

Press and hold "Ctrl" key   and then press number 3 key   to switch the display mode.
Note: display mode switch loop:
   1 full screen--> 4 sources multi-view --> 3 sources multi-view -->2 sources multi-view--> 1 full screen.

Press and hold "Ctrl" key   and then press number 4 key   to switch the audio source.
Note: 1. when the input is full screen, press these keys will not switch audio, cause full screen mode, audio will come with corresponding video.
  2.when it's in multi-view mode, pressing these keys will switch the audio source. You can see the audio symbol on screen source number display area.

Press and hold "Ctrl" key   and then press number 5 key   to mute audio.

Note: To unmute audio, just press "Ctrl"   and

B. USB Cycle Switching Mode
USB Cycle switching mode, press and hold "Ctrl", then press the arrow key "→" or "←" key to switch to the next or previous Host. If the current status is synchronization mode, it will switch to switching mode and switch to Host 1.
   For example, the current status is keyboard and mouse connected to Host1.
      Press and hold "Ctrl" + "→", switch to host 2
      Press and hold "Ctrl" + "→", switch to host 3
      Press and hold "Ctrl" + "→", switch to host 4

   If the current status is keyboard and mouse connected to Host 1.
      Press and hold "Ctrl" + "←", switch to host 4
      Press and hold "Ctrl" + "←", switch to host 3
      Press and hold "Ctrl" + "←", switch to host 2
      Press and hold "Ctrl" + "←", switch to host 1

C. USB Synchronization mode

Press "ScrollLock" key twice, and then press "0", it will work in synchronization mode.

Press "ScrollLock" key twice, and then press "Esc" to cancel synchronization mode

Press "ScrollLock" key twice, and press "1", "2", "3", "4" key to make the   corresponding host enter/cancel synchronization mode.

Examples:

"ScrollLock" + "ScrollLock" + "0", all of the Hosts will enter synchronization mode.

"ScrollLock" + "ScrollLock" + "Esc", all of the Hosts will cancel synchronization mode.

"ScrollLock" + "ScrollLock" + "1", Host1 will enter/cancel synchronization mode

"ScrollLock" + "ScrollLock" + "2", Host2 will enter/cancel synchronization mode

"ScrollLock" + "ScrollLock" + "3", Host3 will enter/cancel synchronization mode

"ScrollLock" + "ScrollLock" + "4", Host4 will enter/cancel synchronization mode

Note: Please set all of the computers to the same resolution so that the mouse and keyboard are synchronized on them.

D. Roam mode

Pressing "ScrollLock" twice, and then pressing "M", will Enter/Cancel the keyboard and mouse in roam mode, they can roam in 8 Hosts, one by one with the sequence 1↔2↔3↔4↔1.

E. Bursts key function

Setting the Bursts key: Press and hold "ScrollLock" and then press the key you need to set bursts. That will set that key to have the bursts function, when you type this key, it will show 2 characters. This system supports a maximum of 6 bursts key, after setting 6, it will not be able to add any further bursts keys. The bursts keys are not saved after a power recycle.

Cancel bursts key: Press and hold "ScrollLock", and then press the key that you set for the bursts, it will cancel them. Pressing and holding "ScrollLock" and then press the "Esc" key, will cancel all of the bursts keys.

Example ：

Press "ScrollLock" + "key", setting/canceling the bursts key.

Press "ScrollLock" + "Esc", cancel all of the bursts key.

Factory Reset

Press "scrollLock" twice, then press "R", all LEDs will turn off and then on again.

Change Unit PID

Press "ScrollLock" key twice and then press the "P" key, it will change the unit's PID, this could be used to solve a PID conflict or other situation causing the unit to not work correctly.

Configure the Hot key function

Press "ScrollLock" key twice, and then press the "K" key, to turn off/on the hot key function. When turning off the hot key function will recover it after a power cycle.

If your keyboard does not have a "Scroll Lock" key, or the "ScrollLock" is not working, press the "Ctrl" key twice and then press the "K" key to turn it on/off using "Ctrl"as the hot key. Aftyer doing this, "Ctrl" will have the same function as "ScrollLock". This setting will not save after a power cycle.

RS232 Control

Please connect the RS232 DB9 port to a PC or use a USB to RS232 adapter to connect the RS232 DB9 port.
The RS232 protocol for this matrix is: Baud rate: 115200, data bits: 8, stop bit: 1, check bit: 0.

RS232 commands

Instruction: command format should be as below:

    Send: AT+HTSYS=SS41HK,STATUS$

    Feedback: +RSPPIC=SS41HK,11$

Please note: Command characters are case sensitive.

Instruction	commands	feedback	example
Get System In-formation	AT+HTSYS=SS41HK,STATUS	+RSPPIC=SS41HK,1 +RSPAUD=SS41HK,4 +RSPUSB=SS41HK,4	Send: AT+HTSYS=SS41HK,STATUS$ Feedback: +RSPPIC=SS41HK,1$
System Reset To Default	AT+HTSYS=SS41HK,RESET	+RSPSYS=SS41HK,RESET	Send: AT+HTSYS=SS41HK,RESET$ Feedback: +RSPSYS=SS41HK,RESET$
Select Picture Mode to Output	AT+HTPIC=SS41HK,x x=1-11(Pictrue Mode) 1: Input1 to Full Screen 2: Input2 to Full Screen 3: Input3 to Full Screen 4: Input4 to Full Screen 5: 4 Input in 2x2 Splitter. 6: Input1 and Input2 in 2 Splitter 7: Input3 and Input4 in 2 Splitter 8: Input1 Large(1 large and the rest 3 in small mode) 9: Input2 Large(1 large and the rest 3 in small mode) 10:Input3 Large(1 large and the rest 3 in small mode) 11:Input4 Large(1 large and the rest 3 in small mode)	+RSPPIC=SS41HK,x x=1-11(Pictrue Mode) 1: Input1 to Full Screen 2: Input2 to Full Screen 3: Input3 to Full Screen 4: Input4 to Full Screen 5: 4 Input in 2x2 Splitter. 6: Input1 and Input2 in 2 Splitter 7: Input3 and Input4 in 2 Splitter 8: Input1 Large(1 large and the rest 3 in small mode) 9: Input2 Large(1 large and the rest 3 in small mode) 10:Input3 Large(1 large and the rest 3 in small mode) 11:Input4 Large(1 large and the rest 3 in small mode)	Set to 4 sources Multi-view mode: Send: AT+HTPIC=SS41HK,5$ Feedback: +RSPPIC=SS41HK,5$
Select Audio to Output (only active in multi-view mode)	AT+HTAUD=SS41HK,x x=(1-4,MUTE,UNMUTE) 1-4: Input Port MUTE: Output Audio Mute UNMUTE: Output Audio Unmute	+RSPAUD=SS41HK,x x=(1-4,MUTE,UNMUTE) 1-4: Input Port MUTE: Output Audio Mute UNMUTE: Output Audio Unmute	Select Audio input 1: Send: AT+HTAUD=SS41HK,1$ Feedback: +RSPAUD=SS41HK,1$
USB Host Select	AT+HTUSB=SS41HK,x x=1-4(USB Host Port)	+RSPUSB=SS41HK,x x=1-4(USB Host Port)	Select USB Host 1: Send: AT+HTUSB=SS41HK,1 Respond: +RSPUSB=SS41HK,1