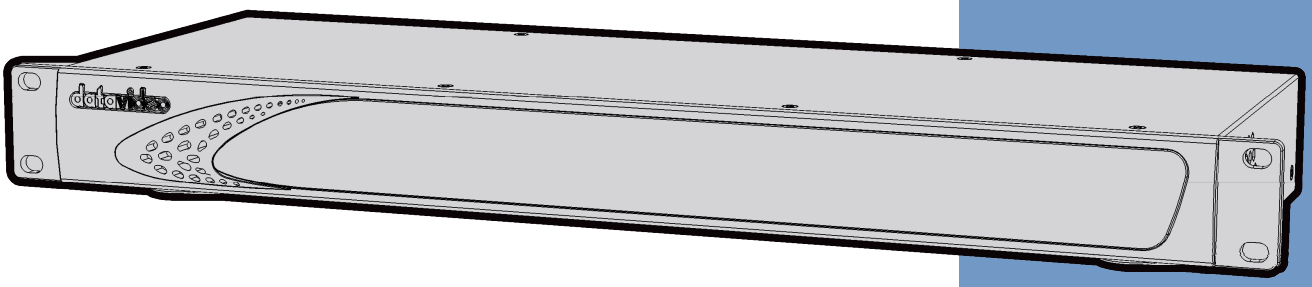
datavideo



4K VIDEO WALL
PROCESSOR 2x2

TWP-10

Instruction Manual

www.datavideo.com

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Disclaimer of Product & Services

The information offered in this instruction manual is intended as a guide only. At all times, Datavideo Technologies will try to give correct, complete and suitable information. However, Datavideo Technologies cannot exclude that some information in this manual, from time to time, may not be correct or may be incomplete. This manual may contain typing errors, omissions or incorrect information. Datavideo Technologies always recommend that you double check the information in this document for accuracy before making any purchase

decision or using the product. Datavideo Technologies is not responsible for any omissions or errors, or for any subsequent loss or damage caused by using the information contained within this manual. Further advice on the content of this manual or on the product can be obtained by contacting your local Datavideo Office or dealer.

FCC Compliance Statement

This device complies with part 15 of the FCC rules. 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.

Warnings and Precautions

1. Read 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 use this unit in or near water.
5. Do not place this unit on an unstable cart, stand, or table. The unit may fall, causing serious damage.
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 Datavideo 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 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 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:
    a. When the power cord is damaged or frayed;
    b. When liquid has spilled into the unit;
    c. When the product has been exposed to rain or water;
    d. 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;
    e. When the product has been dropped or the cabinet has been damaged;
    f. When the product exhibits a distinct change in performance, indicating a need for service.

Warranty

Standard Warranty

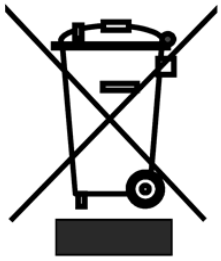
- Datavideo equipment are guaranteed against any manufacturing defects for one year from the date of purchase.
- The original purchase invoice or other documentary evidence should be supplied at the time of any request for repair under warranty.
- The product warranty period beings on the purchase date. If the purchase date is unknown, the product warranty period begins on the thirtieth day after shipment from a Datavideo office.
- Damage caused by accident, misuse, unauthorized repairs, sand, grit or water is not covered under warranty.
- Viruses and malware infections on the computer systems are not covered under warranty.
- Any errors that are caused by unauthorized third-party software installations, which are not required by our computer systems, are not covered under warranty.
- All mail or transportation costs including insurance are at the expense of the owner.
- All other claims of any nature are not covered.
- All accessories including headphones, cables, and batteries are not covered under warranty.
- Warranty only valid in the country or region of purchase.
- Your statutory rights are not affected.

Three Year Warranty

- All Datavideo products purchased after July 1st, 2017 are qualified for a free two years extension to the standard warranty, providing the product is registered with Datavideo within 30 days of purchase.

- Certain parts with limited lifetime expectancy such as LCD panels, DVD drives, Hard Drive, Solid State Drive, SD Card, USB Thumb Drive, Lighting, Camera module, PCIe Card are covered for 1 year.
- The three-year warranty must be registered on Datavideo's official website or with your local Datavideo office or one of its authorized distributors within 30 days of purchase.

Disposal



For EU Customers only - WEEE Marking

This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

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

1. Introduction

The **TWP-10** 4K Video Wall Processor 2x2 is a powerful, cost effective, and truly real time data/video processor for multiple flat panel displays or projectors. Any setups for the display layout can be virtually possible with the control software.

The **TWP-10** allows the user to input HDMI video up to 4K2K@60Hz 4:4:4. The embedded scaler converts signals from HDMI source to match the original resolution of monitors, flat panel displays, projectors and user-selectable output settings up to **Widescreen Ultra eXtended Graphics Array (WUXGA 1920x1200)**.

The **TWP-10** sends the processed video through HDMI interface to the connected monitors / projectors based on the display layout setup. The layout can be readily modified for various applications such as digital signage, video broadcast, education and surveillance system as well as visual effect optimization.

That's Datavideo, sharing the value!

Features

- Four HDMI outputs with resolution from 640x480 to 1920x1200
- Supports HDMI input from 640x480 to 4K2K@60 (YUV 4:4:4), interlaced or progressive
- HDCP compliant
- Image parameters and layouts are automatically saved in flash memory of the device and can be recalled for later use
- Several image parameters and layouts can be saved in computers and loaded for later use
- Firmware upgradable for new features and technology enhancements
- Supports IR remote control
- Software control through USB and Ethernet
- Resize, position, zoom for each HDMI output video
- User-selectable output settings, up to 1920x1200
- Supports remote control of switching between 1x1, 2x2, 1x3 rotate, and 1x4 rotate modes
- Supports independent input rotation at the resolution up to 1080p
- 4K2K60 (YUV 4:4:4) can be divided and displayed on four 1080p60 TVs (2x2 layout only)
- Supports individual propagation delay on each display to achieve the best visual perception

- Supported resolutions

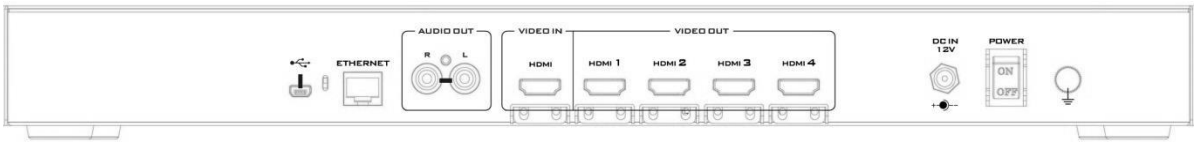
Input Resolution	Output Resolution
720x480@30Hz	640x480@60Hz
720x480@60Hz	720x480@60Hz
720x576@30Hz	720x576@60Hz
720x576@60Hz	800x600@60Hz
1280x720@60Hz	1024x768@60Hz
1920x1080@30Hz	1280x720@60Hz
1920x1080@60Hz	1280x768@60Hz
4K2K@30Hz	1280x960@60Hz
4K2K@60Hz (4:2:0 10 bits)	1280x1024@60Hz
4K2K@60Hz (4:2:2 10 bits)	1366x768@60Hz
4K2K@60Hz (4:4:4 8 bits)	1440x900@60Hz
	1680x1050@60Hz
	1920x1080@60Hz
	1920x1200@60Hz
	1600x1200@60Hz

2. Connections and Controls

Front Panel

Lightly touch the power button on the front panel of the device to turn **ON** the TWP-10.

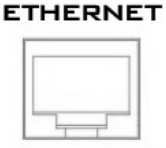
Rear Panel



1. Power ON/OFF Switch
Turn this power switch ON to enter the device into **STANDBY** mode.

2. DC Power Jack
DC in socket connects the supplied 12V PSU. The connection can be secured by screwing the outer fastening ring of the DC In plug to the socket.

3. USB Virtual COM Port
Connect this port to the PC for access to the device user interface.



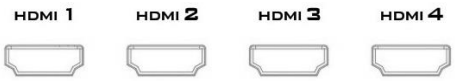
4. Ethernet Control Port
Connect this port to the PC for access to the device user interface.

Note: Set your Ethernet IP via USB COM port before connecting to the Ethernet port. See *4.1* for details.

5. Stereo Audio Output L/R
RCA Stereo for analogue audio output.

6. HDMI Input
Connect the HDMI video source to this port.

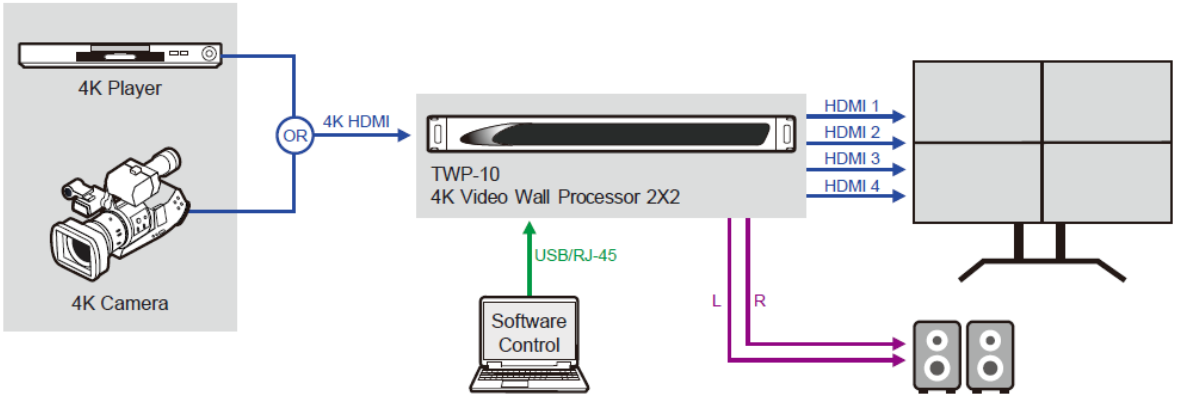
7. DIP Switch
ON (UP): Operation mode
OFF (DOWN): Firmware update mode



8. HDMI Outputs
Connect video display devices to the respective HDMI output ports.

3. How to set up the TWP-10

1. Set the TWP-10 as the master device.
2. Connect an HDMI video source to the HDMI input of the TWP-10.
3. Connect all display devices to the respective HDMI outputs of the TWP-10.
4. Connect the 12V 2A DC power adapter to the TWP-10.



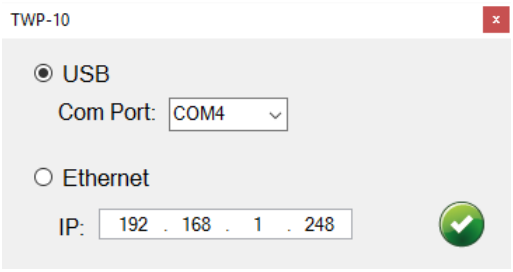
4. Software Control Program

The TWP-10 comes with a software control program which runs under Microsoft Windows 98, 2000, XP, 7, 8. Simply click the program icon after it is installed on your operating system. However, before you start your software control program, please make sure you have secured the connection between the PC and the TWP-10. The sections below will take you through the system connection setup step by step.

Note: Under Microsoft Windows 7, please run as an administrator.

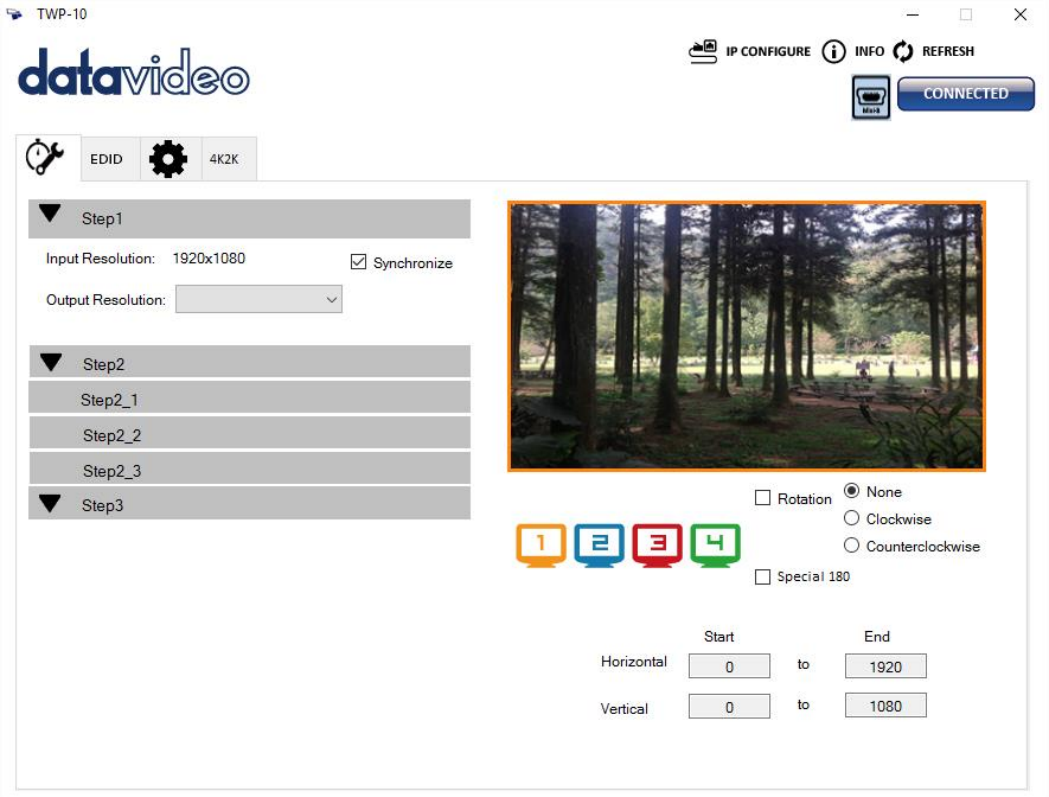
4.1 Start the Software Control Program

The following dialog window will pop up upon execution of the software control program. There are basically two ways to connect the TWP-10. You can either connect via the USB virtual COM port or the Ethernet port.



- USB: Select the appropriate **virtual COM port** and click the **OK** button.
- Ethernet: Enter the TWP-10 device **IP address** and click the **OK** button.
  Note: Before connecting to the Ethernet port, you need to configure your Ethernet IP according to your network environment via USB COM port. The IP address on the left is only for illustrative purpose. See *IP Configure* for details.

After the software control program is loaded, you will see the control interface as shown below.



4.2 Program Interface

I. Connection Status

The connection status is displayed at the top right corner of the program interface. If the PC is connected to the TWP-10 through USB port, the icon displayed will be . However if you see an Ethernet port icon , it indicates that the system setup is in IP control mode.

If connection is unsuccessful, you will see the status as **DISCONNECTED**.

II. Quick Setting Selection

Note: **Quick Setting Selection** is not available when the input resolution is 4K2K@60Hz.

On this page, you will be able to set up the screen resolution, screen coordinates and split screen.

First of all, select the TV icon to configure the corresponding screen settings. The output TV screens are represented by different frame colors and the coordinates displayed below are the output TV screen position coordinates.

	Start		End
Horizontal	0	to	3840
Vertical	0	to	2160

Rotation (Only available when the input is 1080p)

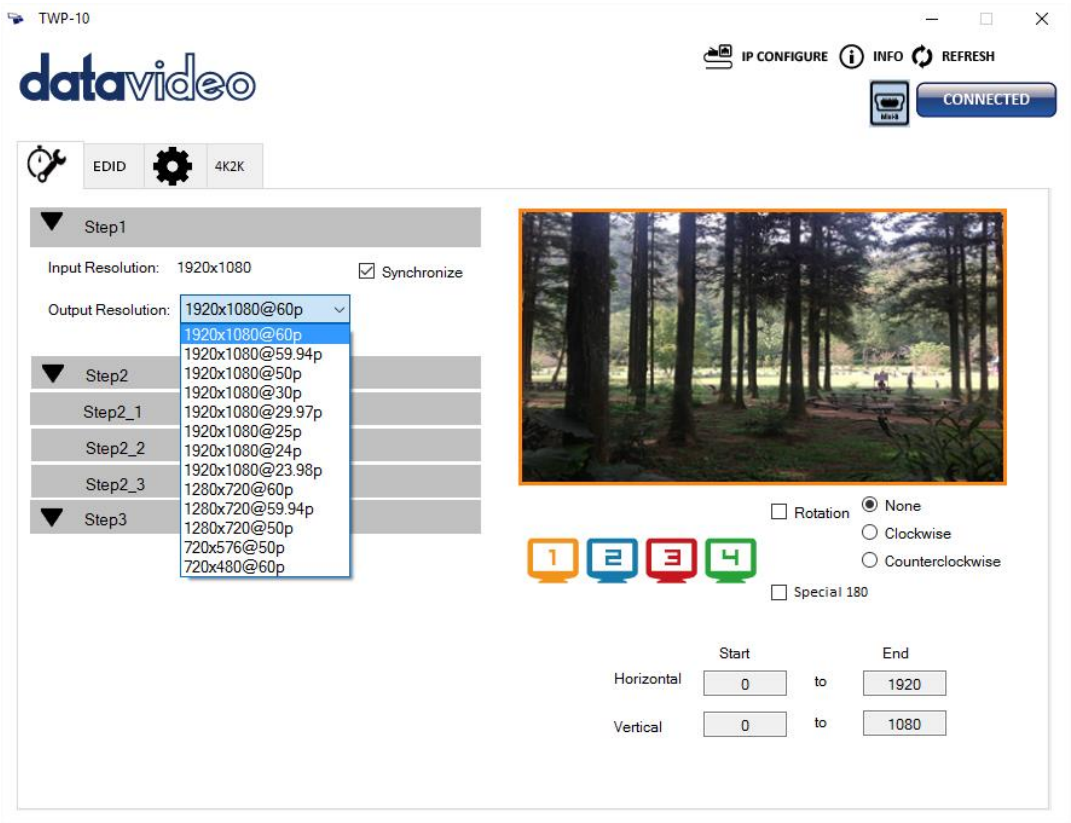
Use the control program to rotate the input independently. You can either rotate the screen clockwise or anti-clockwise.

Output Selection and Resolution

Step 1: Check your input resolution and select the appropriate output resolution.

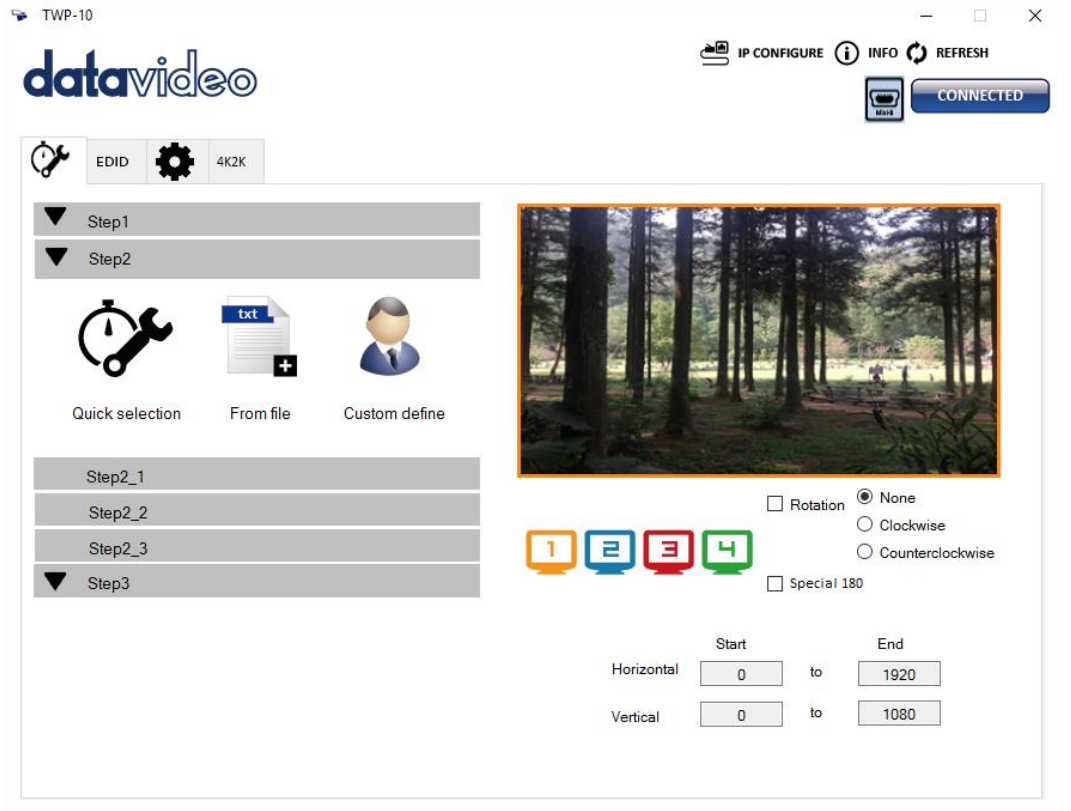
Click the TV icon to start configuring the output resolution. As you select different output resolutions, the output TV screen position coordinates will change as well.

Note: By checking the "**Synchronized**" checkbox, all output TV screens must be configured to the same resolution or the video output will be displayed incorrectly.



Step 2: Output Setting

At Step 2, there are three modes available for configuring the output TV resolution, position, size and split screen. The three modes are **Quick Selection**, **From file** and **Custom Settings**.

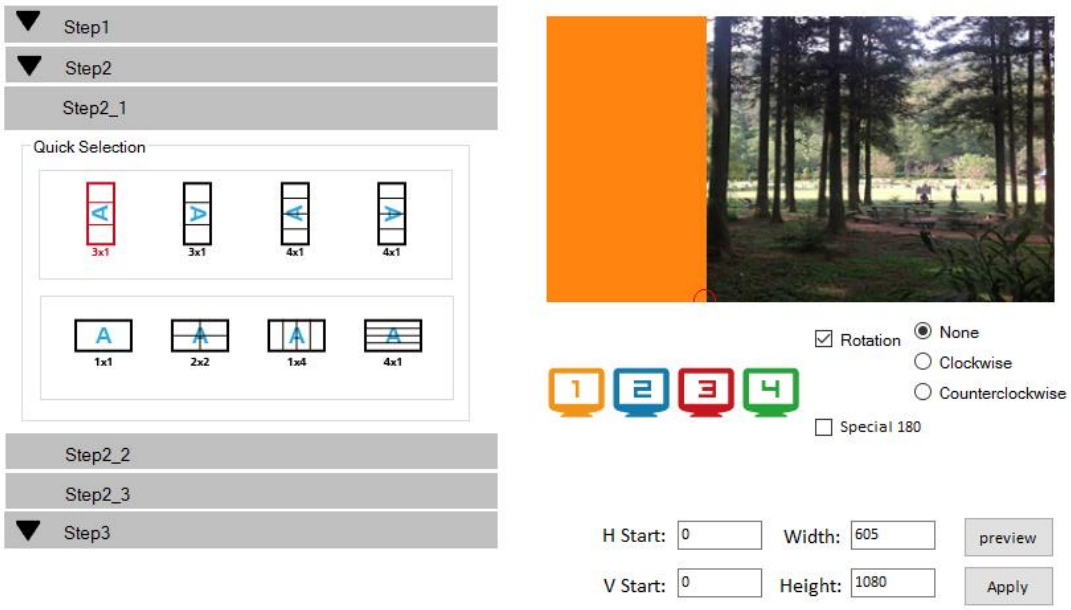


Details of each mode will be described in Steps 2-1, 2-2 and 2-3.

Note: Switching between different modes must only be done at Step 2.

Step 2_1: Quick Selection

Various screen splits and rotations will be displayed on the control interface as soon as the Quick Selection mode is clicked at Step 2. In this mode, you can select the desired screen split and rotation (screen rotation is available only at 720p or 1080p).



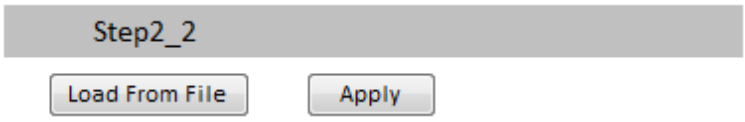
- 3x1: This mode divides the screen into 3 parts and allows screen rotation.
- 4x1: This mode divides the screen into 4 parts and allows screen rotation.

When 3x1 or 4x1 mode is selected, a red circle will appear on the image displayed in the right half of the control interface. You can drag this red circle to resize the output screen. The coordinates can be adjusted by entering numbers in the respective text boxes.

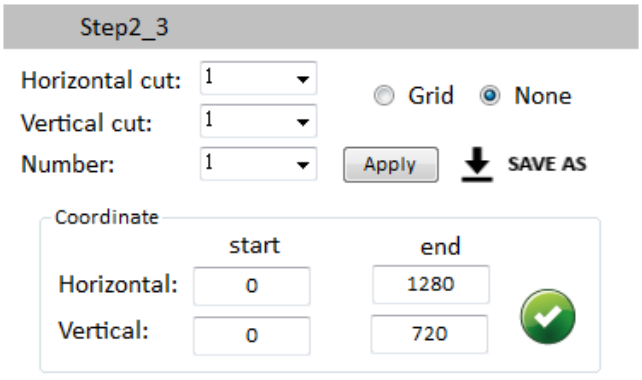
Note: 4k2k60 (YUV 4:4:4) image can only be displayed as a 2x2 layout (1080p60 for each output).

Step 2_2: Configuration from file

You can also load and read configuration file from your PC/laptop.



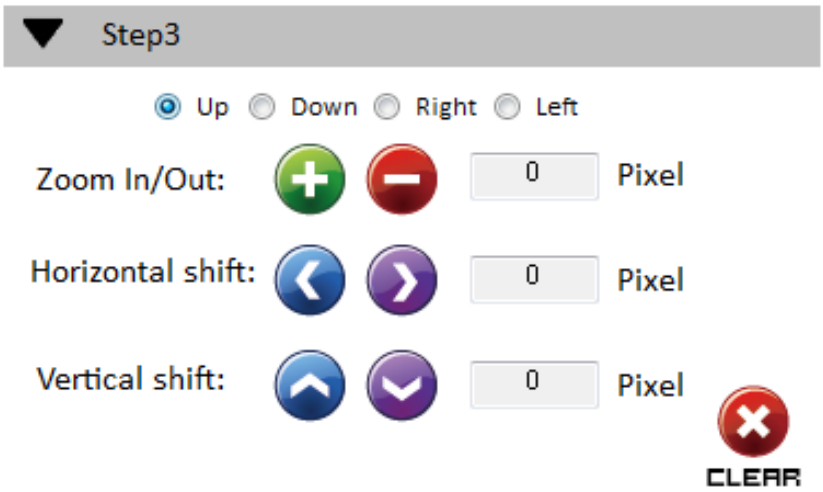
Step 2_3: Custom Settings



In the **Custom Settings** mode, you can define the area that you want to display on the output TV by cropping the image horizontally and vertically. If you want a better picture of the selected area, please select the Grid option to display grids on the image.

After all settings are determined, please click the Apply button to save the settings. The SAVE AS button saves the configuration file on your PC for future use. You can also adjust the output TV screen position by entering the horizontal and vertical coordinates.

Step 3: Bezel Correction

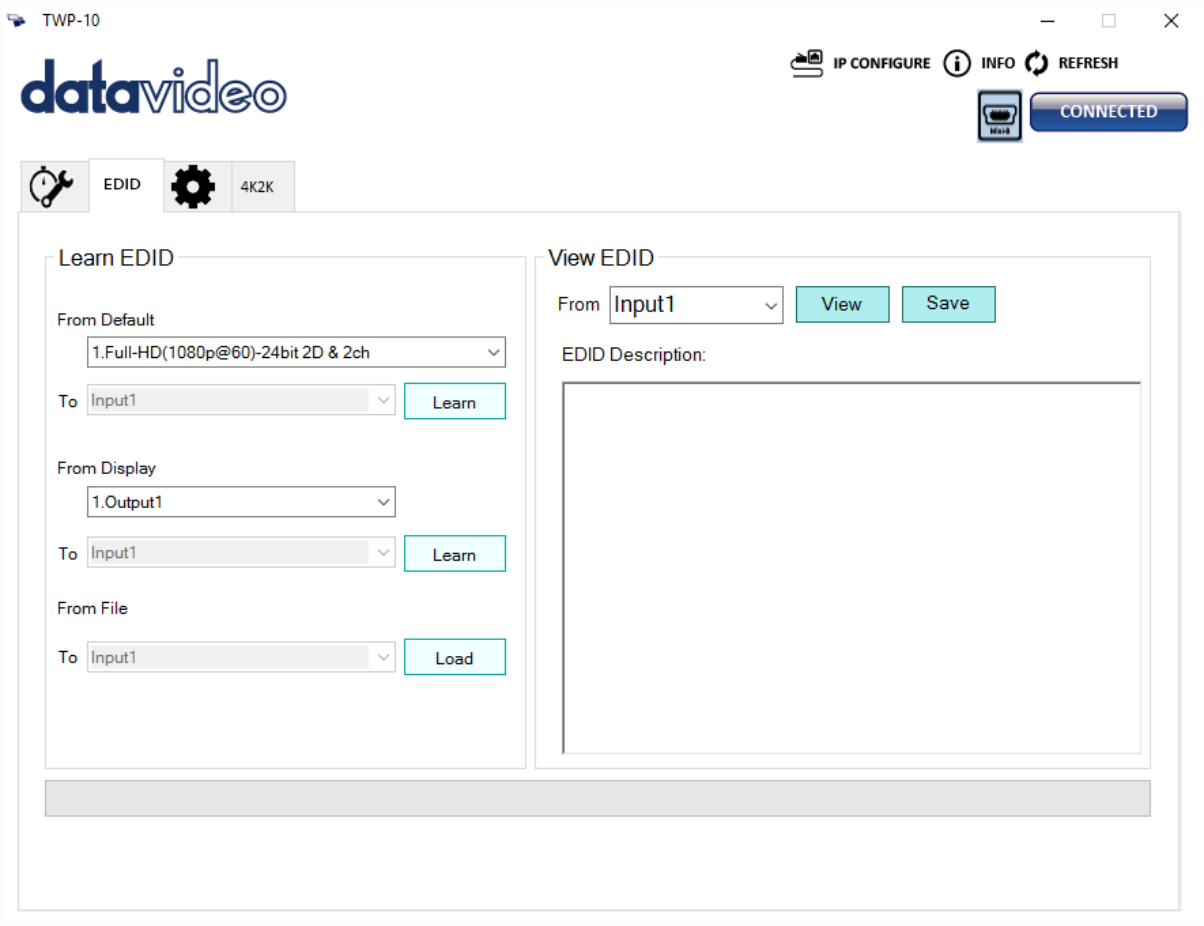


Zoom In/Out: You can adjust the image edge by clicking and buttons to change the pixel number (there are four image edge directions). After all image edges are adjusted, the rest of the image will be auto-scaled to fill the screen.

Horizontal shift/ Vertical shift: You can arbitrarily move the image on the screen in horizontal or vertical direction. The image is moved one pixel at a time.

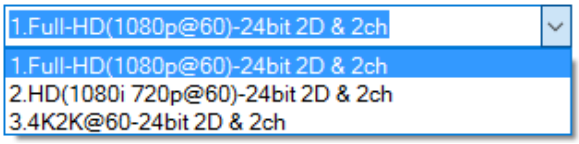
III. EDID (Extended Display Identification Data)

The EDID learning function is only used when you experience any display on the HDMI output port that fails to play audio and video correctly. Because the HDMI source and display may have different levels of capability in playing audio and video, the general rule of thumb is that the HDMI source will output the lowest video standard in terms of the audio format and video resolution. This allows the video output to be commonly acceptable by all HDMI displays. In our case, the 720p stereo HDMI output signal would probably be the best choice. However, the user can still force the device to learn the EDID of the least capable HDMI display from all displays and make sure all displays are capable of playing the HDMI video correctly.



Learn EDID from Default

- Select Default EDID (1-3 default EDID).



- Click Learn button to learn default EDID.

Learn EDID from Display

- Select the Output.
- Click Learn button to learn display EDID.

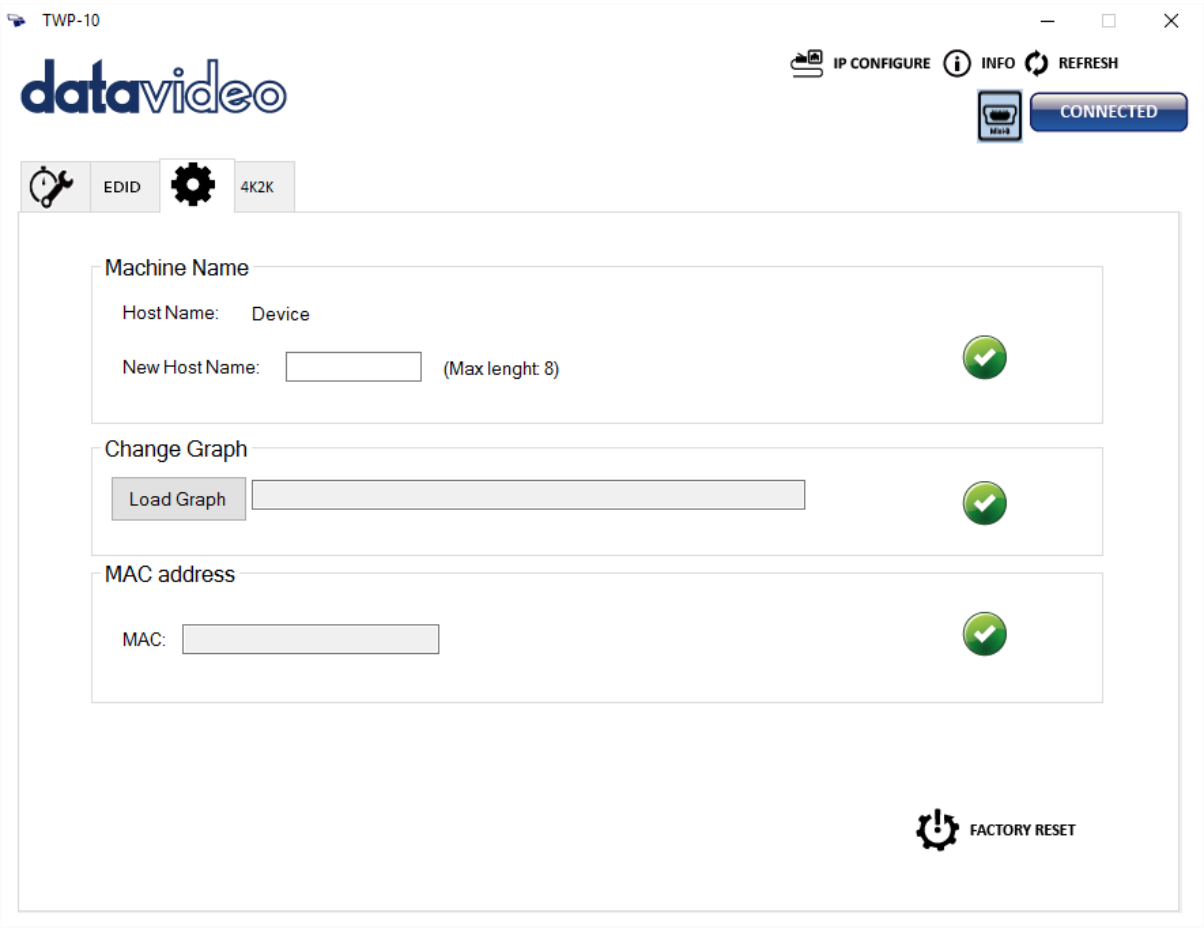
Load EDID from File

- Click Load button to select the EDID file and load it into the designated input.

View EDID content

- Select the EDID input source (Input, Output or From File).
- Click View button to read the EDID description.
- Click Save button to save the EDID as a file on the connected computer.

IV. Advanced Setting

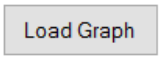


Machine Name

You can give your machine a name by entering a string of characters in the "**New Host Name**" textbox. Please note the **maximum string length** is 8.

Change Graph

You can change the default graph on this machine.

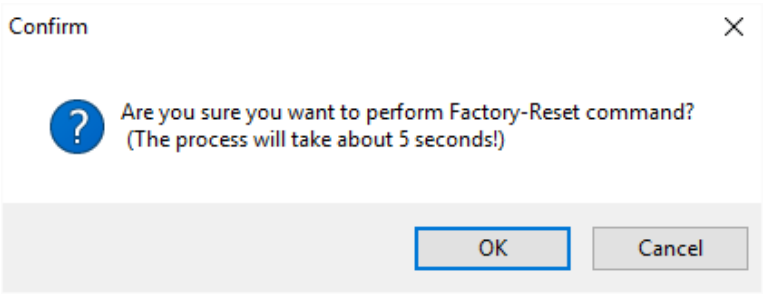
- Click 

button to select the graph.
- After the graph is loaded, please click  button to write this graph into device.

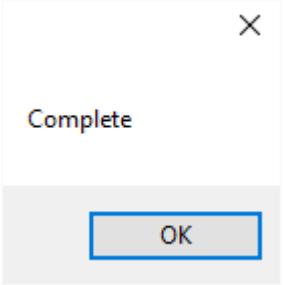
Factory Reset

- Click 

button to reset to factory default settings.
- The factory reset process will take about 5 seconds.

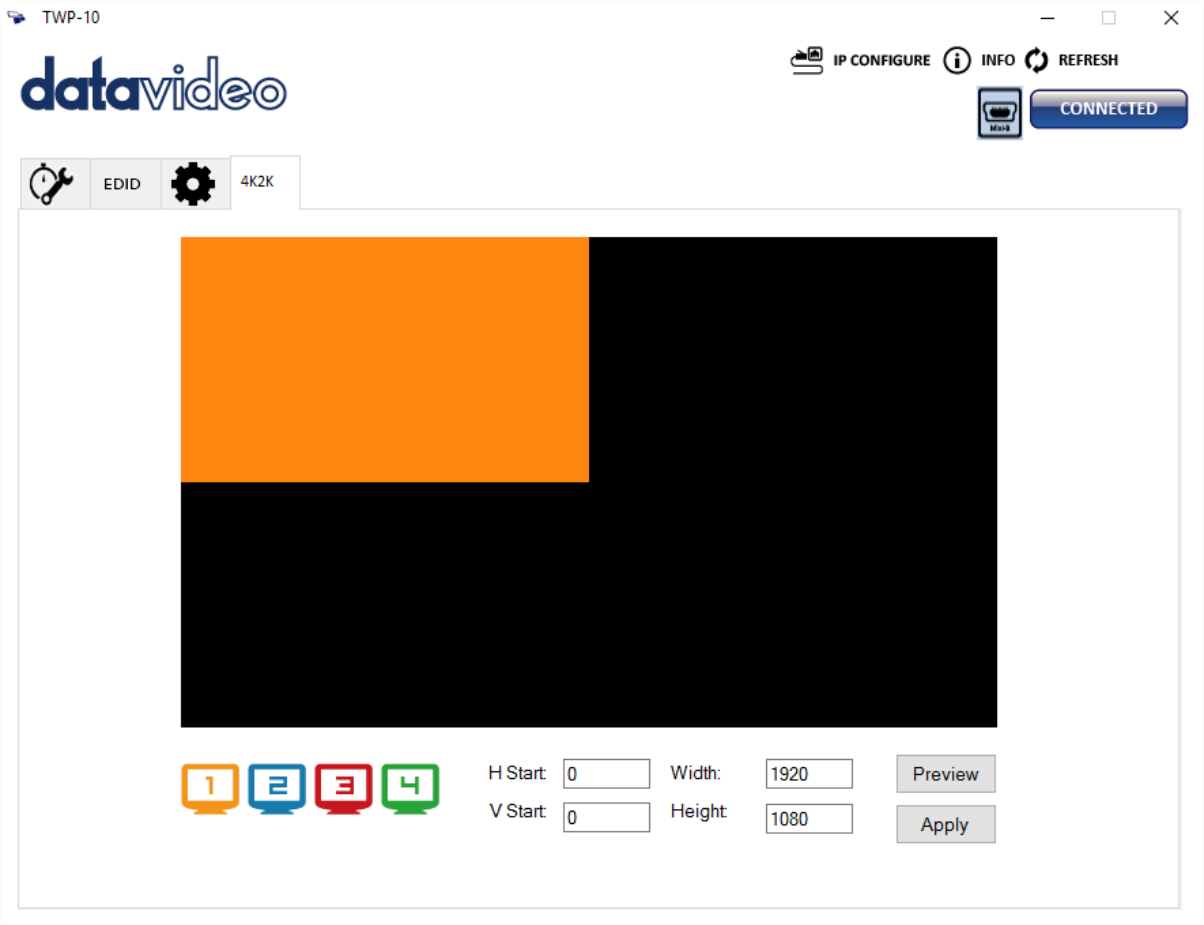


➢ Please restart the device after the “Complete” dialog box is popped up.



V. 4K Setting

When the input resolution is 4K2K@60Hz, the output display will be forced to a 2x2 layout (other layouts cannot be used) and only the output TV screen position is configurable.



VI. IP Configure

IP CONFIGURE To connect to TWP-10 via Ethernet port, you should first configure the device network settings via USB (COM) connection. Follow the steps outlined as follows:

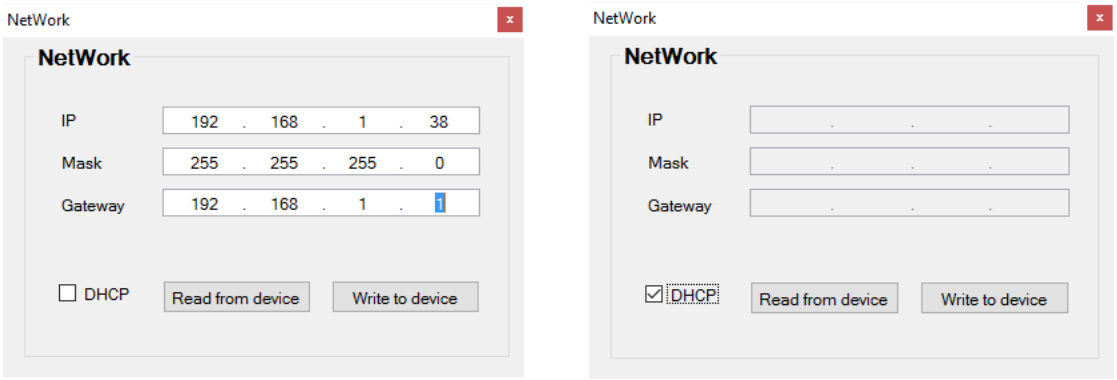
1. Click IP CONFIGURE button to start configuring the network settings.

2. You can choose to work in either Static IP or DHCP mode

- If you are using static IP, you can either read the network settings from the device if it’s saved previously or manually write IP address to the device.
- By checking the **DHCP** box, the device will be allowed to obtain the IP address

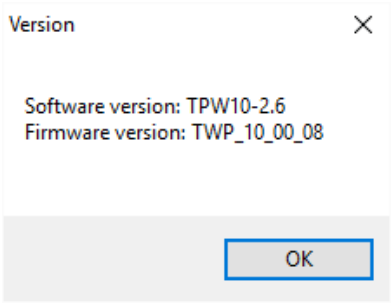
automatically.

3. Please restart the device after the network settings are configured.



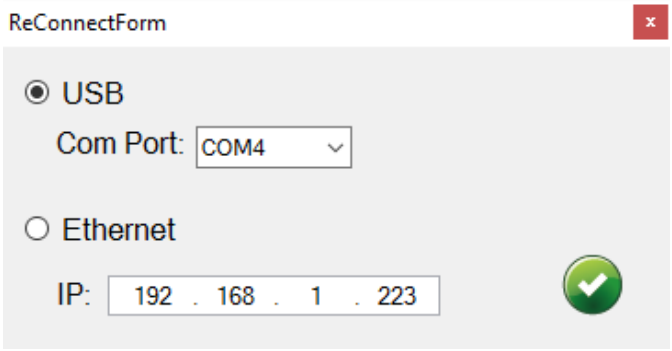
VII. Info

INFO Clicking the Info button allows you to read the software and firmware versions.



VIII. Refresh

REFRESH This function not only refreshes the setting information but also reconnects the TWP-10. Click REFRESH button to update the connection mode. The "ReConnectForm" dialog window will be popped up to allow you to re-select the mode of connection to the TWP-10 device.



5. Firmware Update

Datavideo usually releases new firmware containing new features or reported bug fixes from time to time. Customers can either download the TWP-10 firmware as they wish or contact their local dealer or reseller for assistance.

This section outlines the firmware upgrade process which should take ***approximately 10 minutes to complete***.

The existing TWP-10 settings should persist through the *firmware upgrade process, which should not be interrupted once started* as this could result in a non-responsive unit.

Successful firmware upgrade on TWP-10 requires:

- USB drive with LED indicator
- Mini-USB to Female Type A USB cable
- Latest firmware file

Procedure

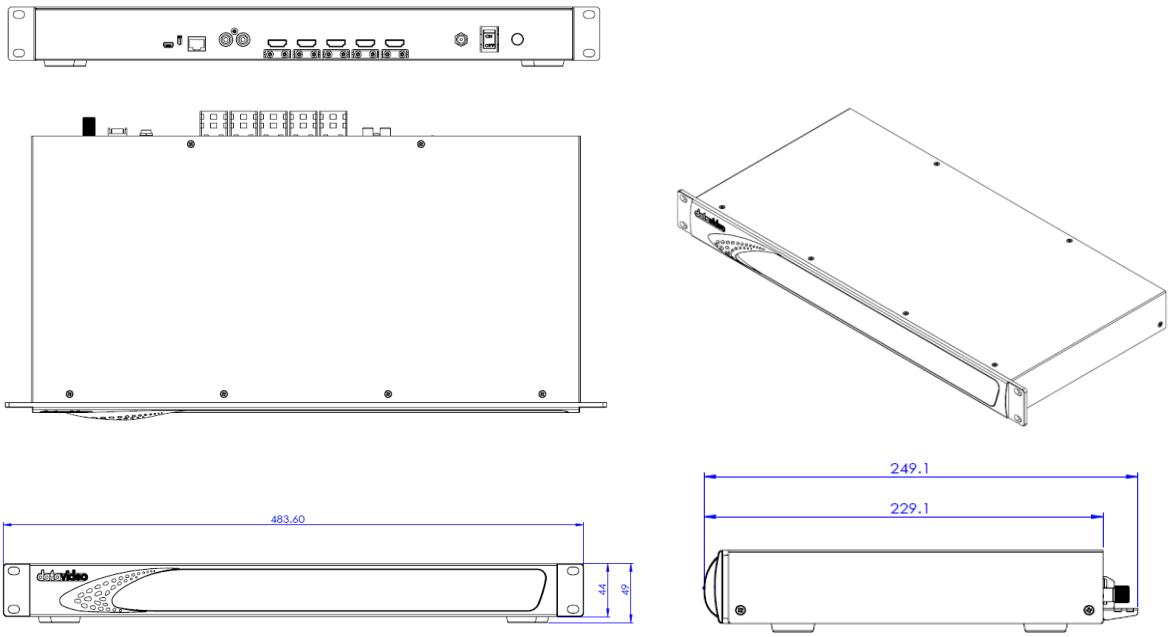
- Turn OFF the machine power (turn off the switch on the rear panel or unplug the power cable)
- Move the DIP switch to OFF position (down)
- Connect a USB drive with at least an LED indicator to the mini-USB port of the TWP-10 via the mini-USB to Female Type A USB cable (the USB drive should contain the firmware file)
- Connect the power
- The firmware update is finished as soon as the USB drive indicator turns OFF (approximately 20-30 seconds)
- Disconnect the power
- Unplug the mini-USB to Female Type A USB cable and move the DIP switch to ON position (UP)
- Turn ON the machine again to check the firmware version.

6. Frequently-Asked Questions

This section describes problems that you may encounter while using TWP-10. If you have any questions, please refer to related sections and follow all suggested solutions. If problem still exists, please contact your distributor or the service center.

No.	Problems	Solutions
1.	Cannot enlarge the window in 4K 2K mode.	In 4K 2K mode, the window can only be shrunk.
2.	Output image is deformed.	1. At Step 2_1 Quick Selection, the output image will be deformed when 1x4 or 4x1 is selected. 2. In UI, the output image is deformed when set to rectangle mode.
3.	Video display is lost after changing the video source.	The device must be restarted after the video source is changed.
4.	UI displays an error message.	On the opened UI, shut down the TWP-10 and power it ON again, an error message will be displayed on the opened UI (device power cycle is required to store system functions).
5.	Flicker noise is seen on the output image after the output resolution is adjusted.	Please power cycle the device to eliminate this issue.
6.	What is the maximum audio spec on the RCA Audio Out?	The maximum audio spec is headphone.
7.	APPLY button is not seen when using the rotation function.	You will see the APPLY button only after the OUTPUT CHANNEL is selected.
8.	Signal is not detected after the REFRESH button is clicked.	After switching sources, video signal sometimes cannot be detected after clicking the REFRESH button.
9.	When using the rotation function, the output image is cropped.	Please do not use the fine tune function as this can cause problems.
10.	Jitters are seen on the output image.	When the input resolution is 1920x1080i 50/59.94/60, all output resolutions will create jitters on the output image. This is the hardware limitation so it is recommended not to use 1080i as the input source.

7. Dimensions & Weight



All measurements in millimeters (mm)

8. Specifications

Video Wall Processor	
Interfaces	
HDCP Compliance	Yes
Video Bandwidth	Input – Single Link 600 MHz [18 Gbps] Output – Single Link 225 MHz [6.75 Gbps]
Video Resolution	Input – 4K2K@60 (4:2:0 10 bits) / 4K2K@60 (4:4:4 8 bits) Output – 1920X1080@60 / 1920x1200@60
Video Format	HDMI
Audio Support	Yes
ESD Protection	Human body - ±15kV [Air-gap discharge] & ±8kV [Contact discharge]
Input Port	1xHDMI / 1xUSB / 1xRJ-45
Output Port	4xHDMI / 1xStereo
Control	IR Remote Control / Ethernet / USB (Virtual) / Front Panel
Input TMDS Signal	1.2 Volts [peak-to-peak]
HDMI Connector	Type A [19 PIN Female]
Mini-USB Connector	Type A
RJ-45 Connector	WE/SS 8P8C
Electrical	
Power Supply	12V 2A DC
Others	
Operating Temperature	0 – 40°C [32 – 104°F]
Storage Temperature	-20 – 60°C [-4 – 140°F]
Operating Humidity	20 – 90% RH [No Condensation]

Notes

Notes

Service & Support

It is our goal to make owning and using Datavideo products a satisfying experience. Our support staff is available to assist you to set up and operate your system. Contact your local office for specific support requests. Plus, please visit www.datavideo.com to access our FAQ section.

Please visit our website for latest manual update.

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