

WATCHPAX 60 USER'S GUIDE



DATATON WATCHPAX 60 – USER’S GUIDE

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This manual refers to the "WATCHOUT USER'S GUIDE." Get the latest version here:

<https://www.dataton.com/support/user-guides>

1. INTRODUCTION

WATCHPAX 60 is a series of dedicated media servers available in four models (S, A, B, C). The server offers four video outputs, SDI options, redundant power supply (models A, B, C) and a high-performance specification designed solely with WATCHOUT shows in mind. The four DisplayPort outputs support 4K (UHD) playback, making it a powerful and portable alternative in a multi-display setup.

WATCHPAX 60 is a locked-down unit, preconfigured for playback of WATCHOUT shows only. Multiple units can be installed together in a rig or mixed with Dataton's other WATCHPAX media servers.

WATCHPAX 60 has a compact, portable 2U form factor designed for tabletop or rack use (rack rails and ears supplied separately). Each unit weighs approximately 10 kg and has rugged, aluminium housing with superior finish.



WHAT'S WATCHOUT?

Dataton WATCHOUT is the leading multi-display production and playback software. Use WATCHOUT to orchestrate images, video, lighting, 3D and interactivity into a single impressive show. The essential components of a WATCHOUT show are the software, media servers (such as WATCHPAX 60) and display devices (projectors, LED displays, etc), running on a standard network.

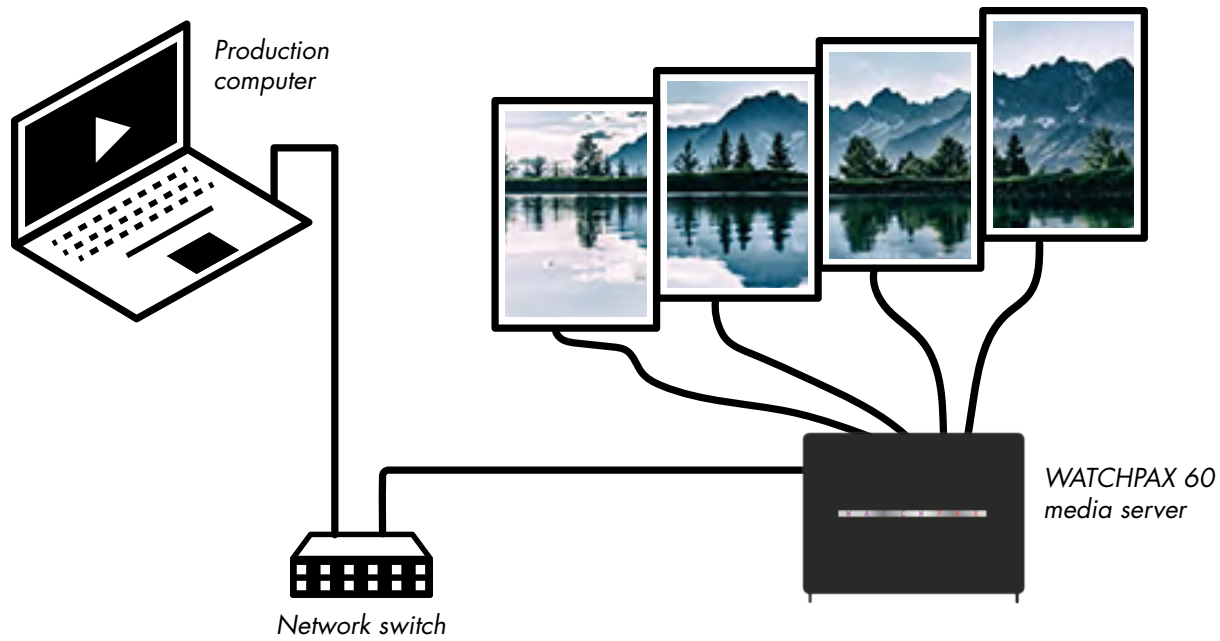
In an operational setup, a WATCHOUT license key is required for the production computer running the show and each media server. All Dataton-branded media servers, including the WATCHPAX 60, have the license key built in.

WATCHOUT shows can be presented with multiple projectors for large, seamless images or used with monitors, LED walls or other creative screen arrangements. WATCHOUT also has a strong set of projection and pixel-mapping features for applying content to complex three-dimensional objects.

Download WATCHOUT for free from the Dataton website: www.dataton.com

SYSTEM OVERVIEW

WATCHPAX 60 is used as part of a WATCHOUT multi-display system.



A small WATCHOUT system with WATCHPAX 60

In the schematic above, there is a laptop (production computer) running WATCHOUT software and equipped with a WATCHOUT license key. This connects to a network switch which, in turn, connects to a Dataton WATCHPAX 60 media server. The WATCHPAX unit connects and manages the display devices. In the example, these consist of four LED screens.

WATCHPAX 60 IN YOUR RIG

The WATCHPAX has four DisplayPort outputs. Used as is, it will manage four display devices in your presentation. Splitters may also be used to increase the number of display devices managed. The system is scalable; as the number of display devices increases, add more media servers to your rig.

To implement the bi-directional SDI in WATCHPAX 60 C model, please read ["9. WATCHPAX 60 MODEL C"](#) and ["4. SYNCHRONIZATION"](#).

As all Dataton-branded media servers have a built-in WATCHOUT license, the only additional license key required is for your production computer. If you are not using a Dataton media server you will need a WATCHOUT license key for each media server/display computer.

DISPLAY DEVICES

In the illustration above, four LED screens are used as the display devices. However, WATCHOUT can be used with virtually any display device that can be connected to a computer (such as projectors, LCD panels, LED walls etc).

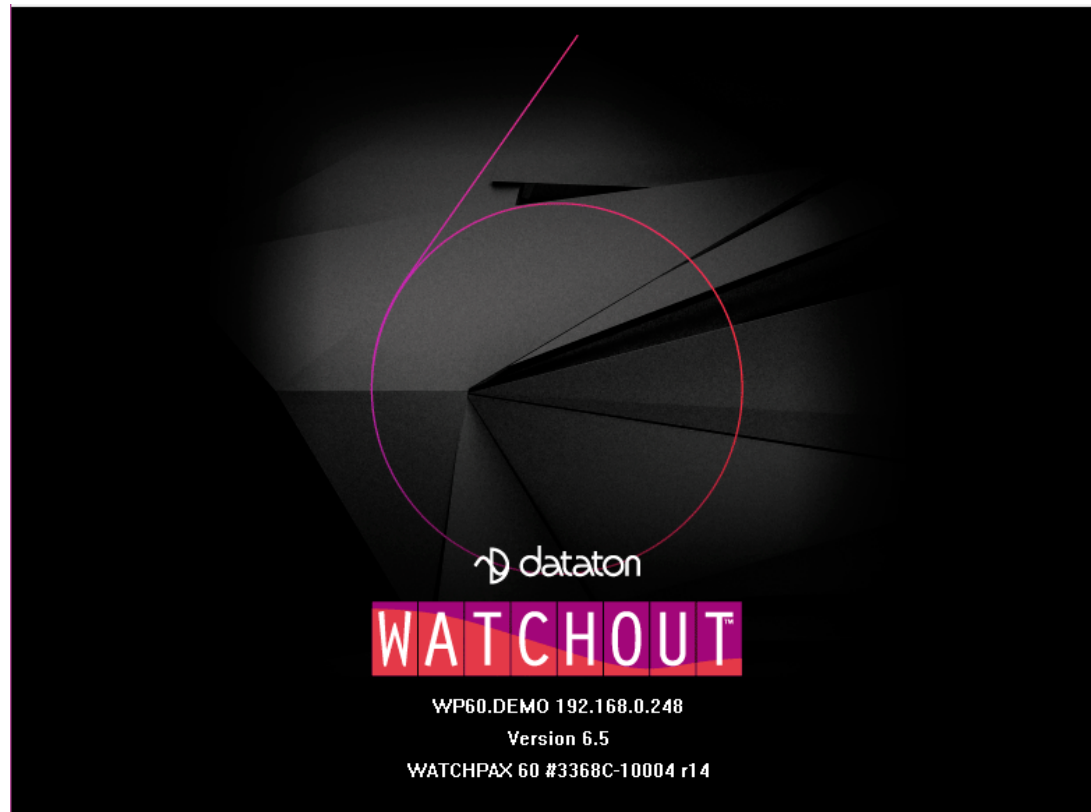
START UP SCREEN

This is shown on all display devices connected to the WATCHPAX 60 at start-up, or if WATCHOUT has been re-launched. There are three lines of information:

First line: Computer and cluster name (if this has been set in the WATCHOUT Production software Network window – please see the "Network Window" section in Chapter 3: Windows, "Dataton WATCHOUT User's Guide" for more information), IP address for the media server.

Second line: Version number of the WATCHOUT Display software that is currently installed on the media server.

Third line: Media server model type, serial number, firmware version



ACCESSORIES

WATCHOUT start-up screen

SUPPLIED

- 1 x power cord with IEC 60320 C13 connector
- 1 x power cord with IEC 60320 C13 connector for redundant power (models A, B, C only)
- 4 x Accell DisplayPort to HDMI 2.0 adapters (models A, B, C only)
- 1 x audio XLR breakout cable (models A, B, C only)
- 9 x micro BNC to BNC adapters (model C only)
- Rubber feet (for tabletop/standalone use)

AVAILABLE SEPARATELY

- Rack kit for mounting the unit to a 19" rack
- Fan filter as a replaceable spare part
- Micro BNC to BNC adapters (model C)



Unit with rails mounted for rack use

TECHNICAL DATA

POWER

Input: 90 V AC ~ 264 V AC, 47 Hz ~ 63 Hz, 2.0 A ~ 0.85 A

Power consumption 500W, 1710 BTU (absolute maximum 600W, 2050 BTU)

SSD MODELS A, B, C

Standard: 1.9 TB

Options: 3.8 TB, 7.6 TB

SSD MODEL S

Standard: 1 TB

ENVIRONMENTAL

Temperature range

Optimal ambient temperature range for operation 21 °C to 23 °C

Operating 0 °C to +40 °C

Storage and transportation -20 °C to +40 °C

Relative humidity

Optimal 45% to 50%

Operating 20% to 85 % (non-condensing)

Storage and transportation 10% to 90% (non-condensing)

Altitude

Operating, maximum 2000 meters above sea level

Noise

Approximately 50 dBA during normal operation

Remember that noise levels are perceived differently by different people. Bear this in mind when choosing the installation site for your servers.

MEDIA SERVER OPERATING SYSTEM

The operating system in WATCHPAX 60 has been optimized and licensed for this specific media server configuration.

Do not install or attempt to install any software on the locked-down media server (such as drivers, software updates, security updates, virus protection, etc). Doing so will automatically void the unit's warranty.

For security reasons, media servers should always be installed and operate on a separate network, without access to other networks.

2. INSTALLATION AND OPERATION

BEFORE USING YOUR WATCHPAX 60

Please read the manual thoroughly before operation. Always check that the unit has not been damaged in transit when you take delivery.

IMPORTANT: The WATCHPAX 60 is a plug-and-play unit. Do not open, modify or repair the unit yourself. Opening, modifying (software or hardware) or repairing the unit yourself will invalidate the warranty and presents a risk for the user.

SAFETY FIRST

- Insert the power plug all the way in, so it is not loose.
- Do not place the power cord or product near heat sources.
- Caution: shock hazard if handled carelessly or inaccurately.
- Avoid installing the product in a narrow space with bad ventilation. Do not block the ventilation in any way when operated. Always keep front and back of unit clear, minimum 200 mm.
- Keep the plastic packaging bag for the product in a place that can not be reached by children.
- Do not install the product on an unstable or vibrating surface.
- Install the unit in a clean, dry area without excessive particles or dust, in the air (preferably in an air-conditioned server room). Do not install the product in a place where it is exposed to high temperature, chemicals, dust, moisture, oil or smoke.
- Take care not to drop the product when moving it.
- When installing the product on a shelf, ensure the bottom edge of the product does not protrude to avoid tipping or other potential mishaps.
- The wall socket should be easily accessible for pluggable equipment.
- High voltage runs through the product. Do not attempt to disassemble, repair, or modify the product on your own. To move the product, first disconnect all the cables from it.
- If the product generates a burning smell, or smoke, remove the power cords immediately and contact Dataton.
- If the product falls, or the exterior is damaged, power off the product, remove the power cords and contact Dataton.
- If there is a risk of thunderstorm or lightning strike, turn off the power and disconnect all cables.
- Do not insert a metallic object or inflammable object into any opening of the product.
- Unplug this product from the AC power supply before cleaning. Do not use liquid or aerosol cleaners on the product. Use a microfiber cloth for cleaning.
- After storage in cold conditions, let the product adapt to normal temperature for two hours before powering on.

VENTILATION

Airflow is critical for the correct operation of WATCHPAX 60. Do not install WATCHPAX 60 in a confined space.

Air flows from the front of the unit to the rear (where the connectors are located). Always keep both front and rear panels clear of obstruction at all times.

INSTALLATION

GENERAL

- This equipment is for professional use for installation at locations where only adults are normally present. Check the “**Safety First**” list before use.
- The WATCHOUT 60 must be connected to a properly grounded wall socket (a socket-outlet with protective earth connection in the building).
- Both power inlets should be connected when using the device to achieve redundancy (available in models A, B, C)
- The serial number is located on the base of the unit.

STANDALONE INSTALLATION

Place the unit flat.

Mount the four self-adhesive rubber feet (supplied) at the points indicated on the base of the unit.

INSTALLATION IN 19-INCH RACK

The WATCHPAX 60 unit may be mounted in a 19-inch rack by using the optional rack kit. Please refer to separate instructions for rack kit assembly.

OPERATION

IMPORTANT: Only use the power cable/s that are delivered with the WATCHPAX 60 unit.

WATCHPAX 60 models A, B, C have two IEC 60320 C14 power inlets and both should be connected when using the device to achieve redundancy. To obtain full redundancy, we recommend that the two power feeds come from different electrical feeds/phases. This reduces the risk of the unit failing if one of the electrical feeds is lost.

WATCHPAX 60 S has a single power inlet.

FIRST POWER ON

The first time you power up a WATCHPAX 60 (after delivery or after a reset) the system will finalize installation and reboot several times. This procedure will typically take about 5 minutes to complete.

IMPORTANT: Do not interrupt this procedure. The first power-on updates firmware of critical components. Forcefully powering off the system during the configuration process might result in non-working hardware components (i.e., capture devices will stop working).

POWER ON

The WATCHPAX 60 is turned on by inserting the power cord/s and then pressing the power button on the front of the unit. Wake on LAN (WOL) may also be used.

POWER OFF

Powering down should be initiated from within WATCHOUT production software.

When the power-off sequence is complete, the fans will turn off, and the power cords may be removed.

There are three ways to power off from WATCHOUT, as described in the “Manage Display Computer” section in Chapter 3: Windows, in the “Dataton WATCHOUT User’s Guide.”

- Use *Manage Display Computer > Power Down* found in the Stage main menu.
- Use the *Manage Display Computer* context menu when a display is selected on the Stage.
- Use the *Remote Access* to initiate shutdown directly from the media server.

NOTE: If you are unable to shut down via the software, you can force shutdown with the power button as a last resort. Please be aware that this may cause data loss and system corruption. To force shutdown in this way, press and hold the power button (located on the front of the media server) for at least 5 seconds. The light will then turn off and the power is cut.

IMPORTANT: Do not unplug power cord/s during power-off as this may cause data loss and system corruption.

RESET WATCHPAX 60

There are occasions when you may want to reset a WATCHPAX 60, for example, if the unit has been corrupted, or if it’s a rental unit and user-specific info has to be removed between rentals.

There are two levels of reset:

- Reset and keep user data. This resets the operating system, display, GPU and capture settings but retains user data, such as shows and media.
- Reset to factory settings. This takes the unit all the way back to the original factory settings, you lose all user data.

IMPORTANT: A reset, regardless of level, is an advanced measure. Make sure you are fully aware of what data you lose when you reset!

RESET AND KEEP USER DATA

This option resets the system partitions but keeps all user data such as:

- Shows
- Media
- WATCHOUT settings
- Startup script
 - Network settings
 - Timecode settings

Driver-related settings will be reset to default factory settings such as:

- Display settings
 - Display mode
 - EDID caching

- GPU settings
 - EDID emulation
 - Synchronization
- Capture settings
 - EDID
 - Color domain, etc.

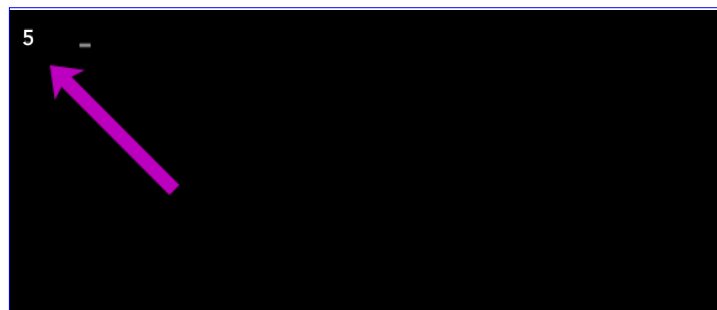
RESET TO FACTORY SETTINGS

This resets all partitions to factory settings and all user data will be lost. This level of reset is suitable when you want to remove all settings between projects.

RESET PROCEDURE

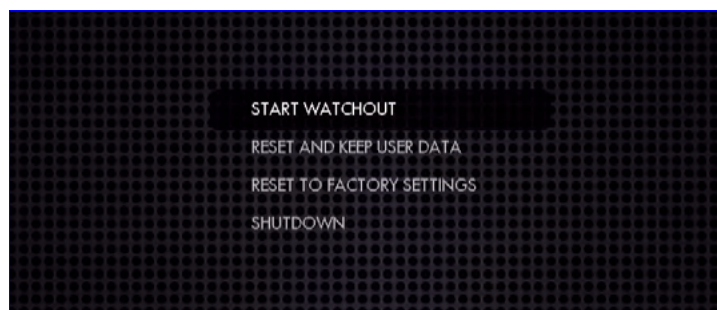
The reset menu is hidden by design in order to avoid accidental resets or misuse. To reset your WATCHPAX 60 device, follow these 10 steps:

1. Power off the WATCHPAX 60.
2. Disconnect all USB devices.
3. Insert a keyboard into one of the two USB ports.
4. Connect at least one display device to a DisplayPort output.
5. Power on the WATCHPAX 60.
6. During startup, you will see a five-second countdown in the top left corner of the display. Press Esc during this countdown.

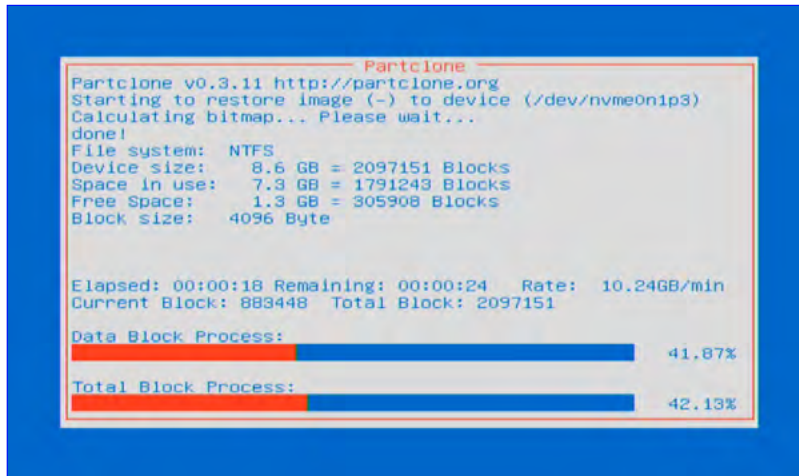


NOTE: If you don't see a counter, it means the display devices are slow to lock to the output using DisplayPort. In this case, press "Esc" five seconds after the startup beep.

7. Select the desired reset option in the menu that appears, and press Enter.



8. **IMPORTANT:** There will be no confirmation: the reset process starts immediately, providing some visual feedback.



9. The WATCHPAX 60 will restart several times in order to configure the operating system and hardware.



IMPORTANT: Do not power off the device during the configuration process!

10. WATCHOUT will start when the process is complete. The system image version will be appended after the serial number (r14 in this example).



DELETE FILES

To remove unused files from the WATCHPAX unit, open WATCHOUT on the production computer on the network. Go to the Stage menu, as below:

Stage > Manage Display Computer > Delete Other Shows

This deletes files from online display computers for all shows, with the exception of the current (open) show.

REBUILD SHOW CACHE

WATCHOUT usually manages the cached data associated with the current (open) show automatically. This ensures that the files stored on your WATCHPAX 60 reflect the latest version of the show.

If the files on the WATCHPAX 60 have been corrupted in some way, you may want to force the show cache to rebuild.

Open WATCHOUT on the production computer on the network. Go to the Stage menu, as below:

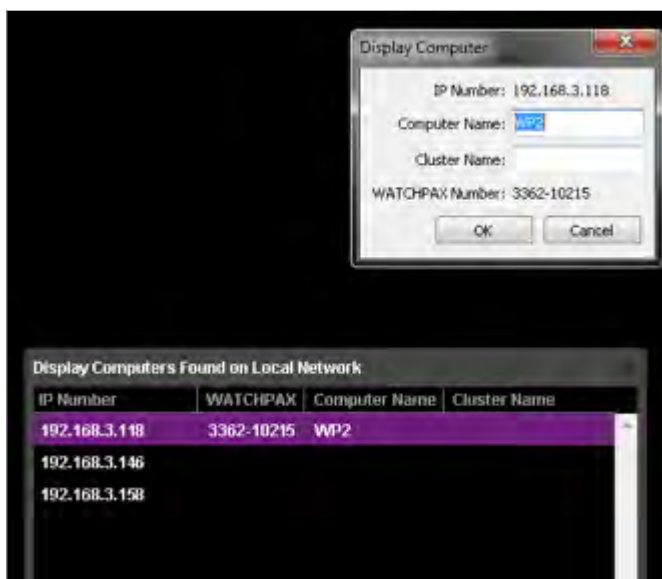
Stage > Manage Display Computer > Re-build Show Cache

This removes and rebuilds all cached data associated with the current show.

3. QUICKSTART GUIDE

THE BASICS

- Connect displays to the WATCHPAX 60.
- Connect the network to the WATCHPAX 60 using the Ethernet 1 port. The Ethernet 2 port is currently disabled and reserved for future use.
- Power up the WATCHPAX 60 (see “Power On”).
- Start WATCHOUT software on the production computer which is on the same network.
Important: Make sure you are using WATCHOUT version 6.5 or higher for models A, B, C. WATCHOUT version 6.6.7 or higher is required for model S.
- The WATCHPAX and any WATCHOUT display computers on the local network will be listed in *Window > Network*. Assign display and cluster names (if required) by double-clicking an item in the list, see screenshot.



WATCHPAX and display computers on the network

MANAGE NETWORK SETTINGS

WATCHPAX automatically retrieves an IP address via a DHCP server. If no DHCP server is available, the WATCHPAX will get a self-assigned IP address in the range 169.254.x.y

If you are using a control system, you may want to use a fixed IP address for WATCHPAX. Still in WATCHOUT, assign a fixed IP through the WATCHOUT protocol command “setIP” in the Startup Script as shown below:

```
authenticate 2  
setIP 192.168.0.32
```

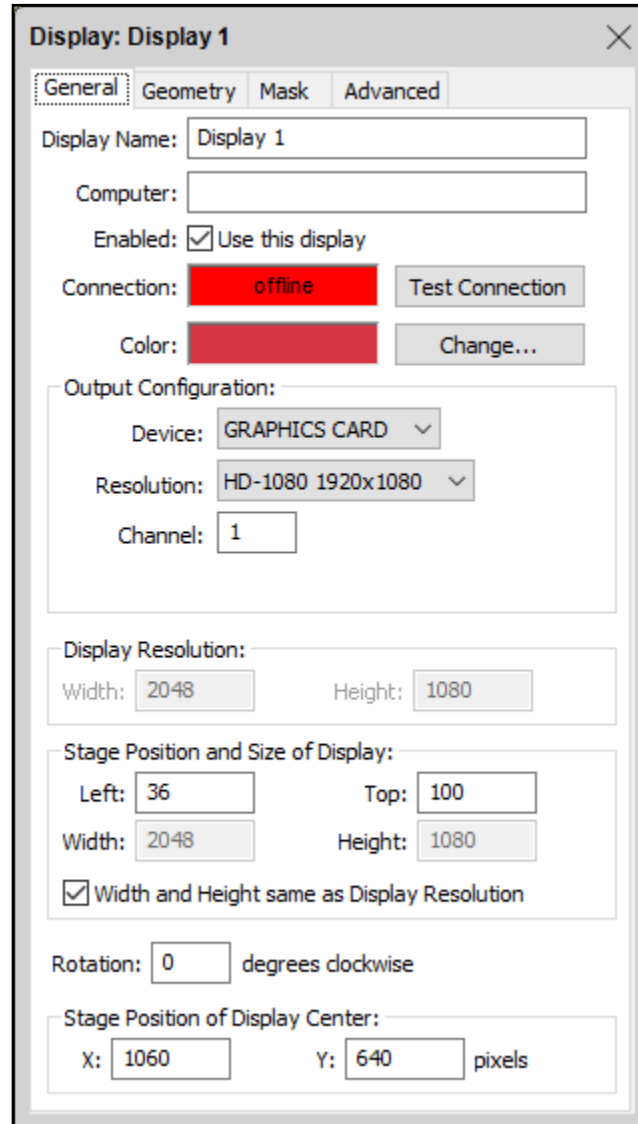
Make sure you choose an IP address in the correct subnet range. To remove the fixed IP number, use the same command but with an empty string parameter, as below:

```
authenticate 2  
setIP
```

The WATCHPAX 60 may also be addressed by name and/or cluster. Please see the “Network Window” section in Chapter 3: Windows, “WATCHOUT User’s Guide” for more information about this feature.

SET NATIVE RESOLUTION

Double-click the display in the Stage window and set the native resolution of your screen or projector, see screenshot.



Display: Display 1

General Geometry Mask Advanced

Display Name: Display 1

Computer:

Enabled: ☒ Use this display

Connection: offline Test Connection

Color: Change...

Output Configuration:

Device: GRAPHICS CARD

Resolution: HD-1080 1920x1080

Channel: 1

Display Resolution:

Width: 2048 Height: 1080

Stage Position and Size of Display:

Left: 36 Top: 100

Width: 2048 Height: 1080

☒ Width and Height same as Display Resolution

Rotation: 0 degrees clockwise

Stage Position of Display Center:

X: 1060 Y: 640 pixels

AUTO START

A WATCHOUT production computer has to be connected when you compose or create your show. When you have composed your show, you can replace the production computer with an external control system, or auto-start the WATCHPAX by using the built-in Startup Script.

NOTE: Use Edit Startup Script in WATCHOUT to define initial WATCHPAX settings. This lets you load shows and perform other WATCHOUT protocol commands. For more information, please see the section on “Display Software,” Command Line Options, “WATCHOUT User’s Guide”.

4. SYNCHRONIZATION

WATCHPAX 60 offers three kinds of synchronization:

- Models S, A, B, C: Standard, WATCHOUT network-based synchronization. This will keep all media servers in the WATCHOUT cluster synchronized. The sync signal comes from either the production computer or the WATCHPAX 60 acting as the cluster master. (Models S, A, B, C)
- Models S, A, B, C: External timecode. The WATCHOUT system can be slaved to an external linear timecode source (LTC). The LTC signal can be fed to the production computer or to the display cluster master, (see “[External Timecode](#)”).
- Models B, C: Hardware-locked synchronization between display clusters. This can be achieved in two ways: using the built-in synchronization card, (see “[GPU Synchronization – Models B, C](#)”), using an external sync connected to the sync input on the SDI card, (see “[SDI Synchronization – Model C Only](#)”).

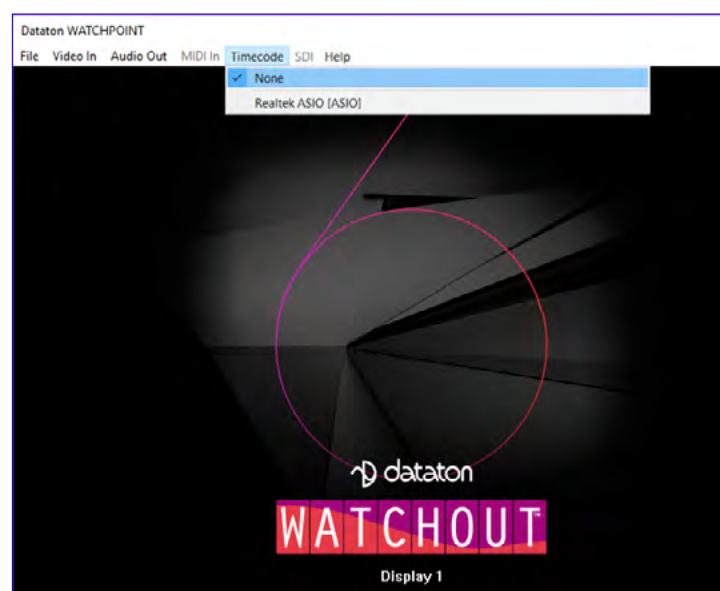
To configure and setup synchronization, access each media server locally. Do this either by a *Remote Access* (from the WATCHOUT production computer) or connect a USB keyboard/mouse and screen to your WATCHPAX 60.

Connecting by Remote Access will automatically bring up the WATCHOUT Display window (WATCHPOINT). If you are using a local keyboard/mouse and screen, enter Ctrl-W to bring up this window. You’ll find more on this in the “Dataton WATCHOUT User’s Guide” in the section on “Display Devices” (Chapter 2: Installation) and “Remote Access” (Chapter 4: Commands).

EXTERNAL TIMECODE

For this to work, timecode must be enabled in the startup script. Read how to do this in the section on “List of Commands/timecodeMode” (Appendix C: Control Protocol) in the “Dataton WATCHOUT User’s Guide.”

Open the WATCHOUT Display menu (WATCHPOINT, Ctrl-W) and select the interface you want to use under “Timecode”.



Models A, B, C: Connect the external timecode source to the audio input using the *Left In 1* connector on the XLR break-out cable. See “[Analog Audio Output Formats \(A, B, C\)](#)”.

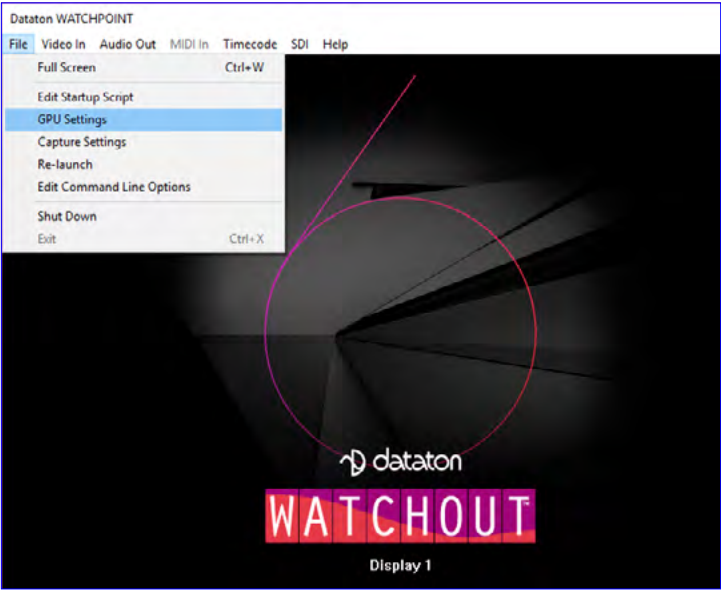
Model S: As this has no audio input, an external USB device is needed to input the timecode signal.

GPU SYNCHRONIZATION – MODELS B, C

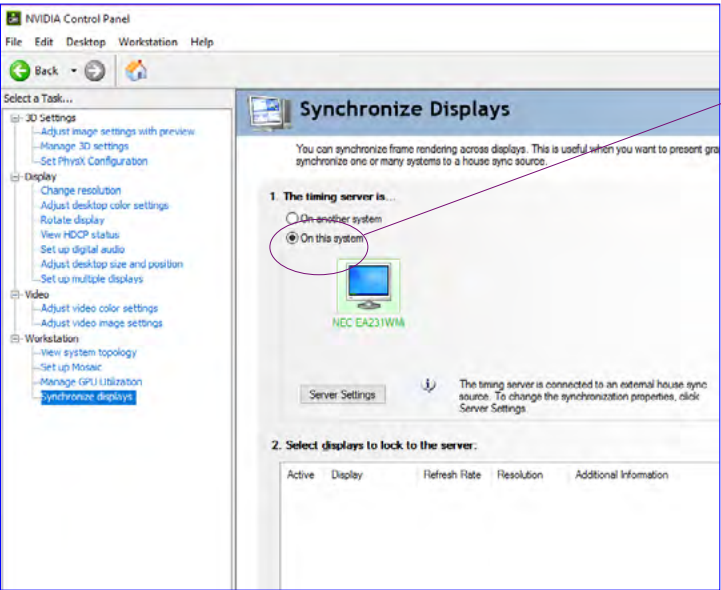
The WATCHPAX 60 is equipped with a synchronization card which makes it possible to achieve frame-lock, synchronization between GPUs and synchronization to an external timing source.

CONFIGURE GPU SYNCHRONIZATION

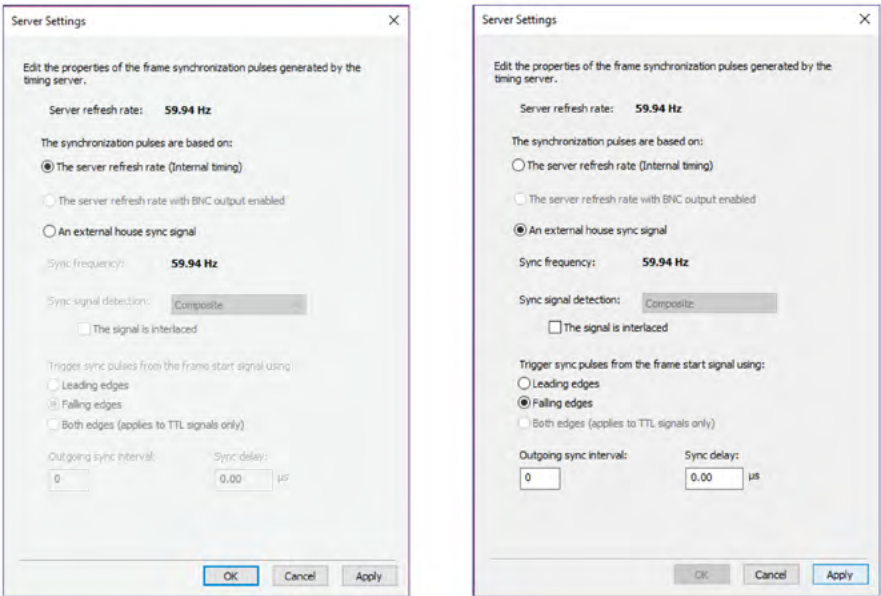
Open the WATCHOUT Display File menu and click GPU settings.



Navigate to Synchronize Displays and set the Timing Server to “On this system”.

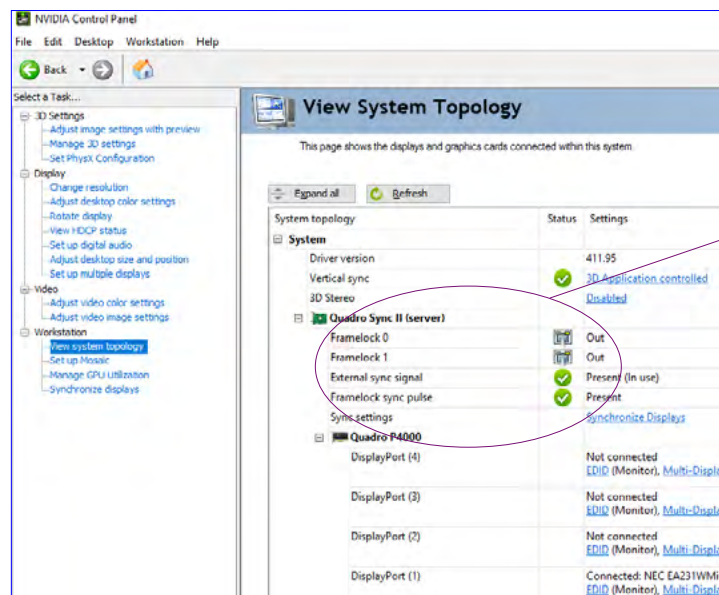


Enter the Server settings.



Here you can either choose the internal timing of this WATCHPAX 60 to be used across your system or, if an external sync generator is connected to your sync card, set it to “An external house sync signal”.

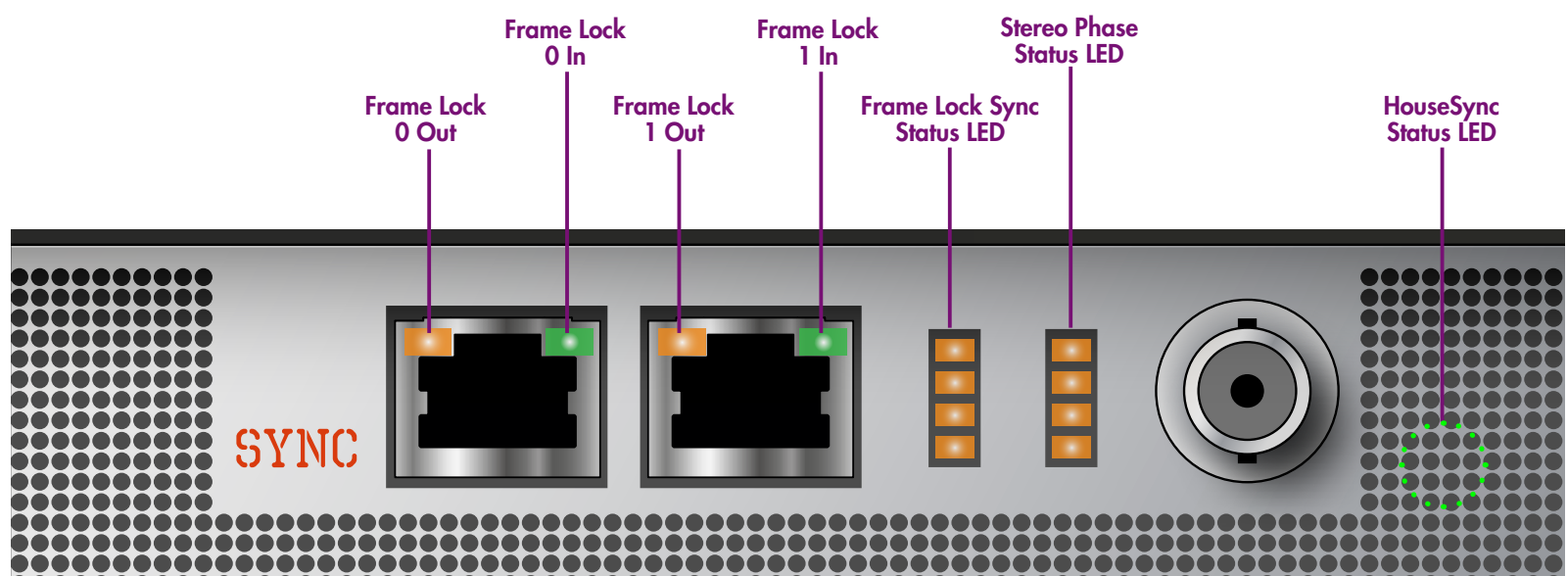
Make sure that synchronization is set up correctly by navigating to “View System Topology”.



Check this info!

INTERPRET STATUS LEDS

- Solid orange: Port is output but no signal is present.
- Solid green: Port is input but no signal is present.
- Flashing orange: Port is output and transmitting. The flashing frequency indicates the refresh rate of the signal.
- Flashing green: Port is input and receiving. The flashing frequency indicates the refresh rate of the signal.



Rear panel, WATCHPAX 60

CONNECT GPU SYNCHRONIZATION

There are two ways to connect GPU synchronization:

- Sync generator into BNC connector.
- Cat 5 cable between the machines to synchronize.

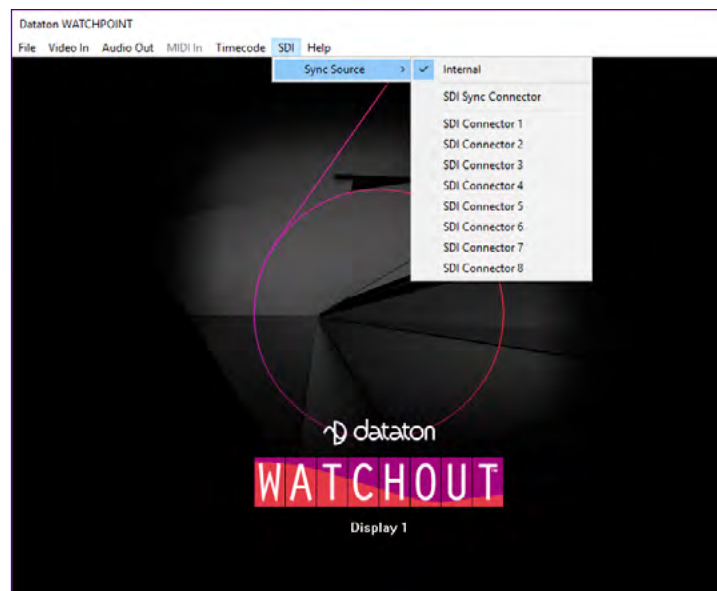
IMPORTANT: Do not connect a network cable between the Sync port on your WATCHPAX 60 and a network interface as this may cause permanent damage to the card inside.

SDI SYNCHRONIZATION – MODEL C ONLY

The SDI outputs on your WATCHPAX 60 can be synchronized in three ways, or modes, as listed below:

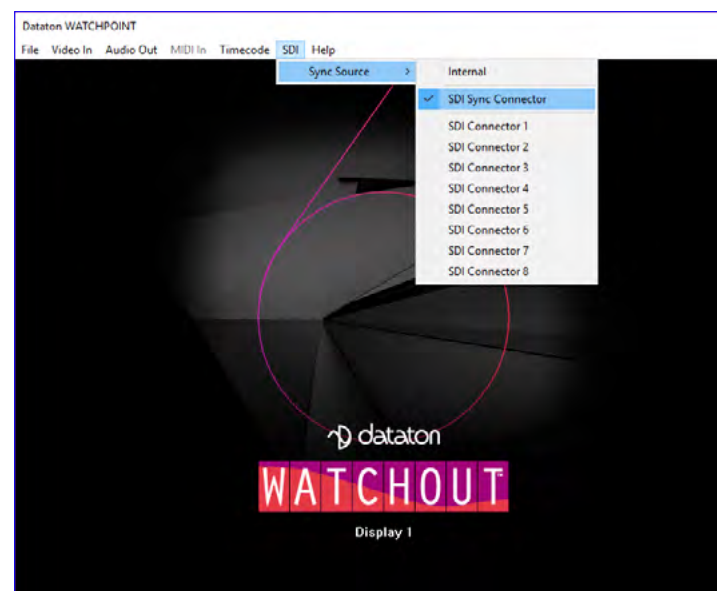
MODE 1: INTERNAL SYNC

This is the default mode. Having this set will ensure synchronization between the different SDI output channels.



MODE 2: SDI SYNC CONNECTOR

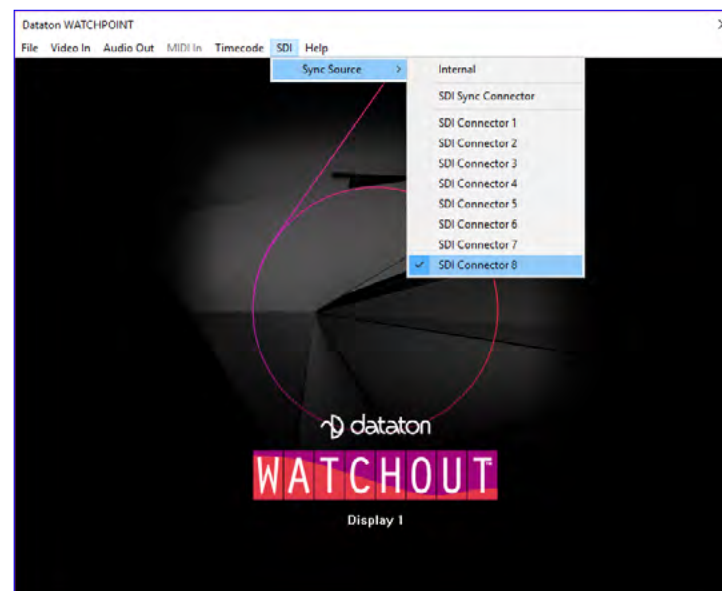
This mode utilizes the dedicated synchronization connector of the SDI board and can be used with a bi- or tri-level synchronization signal.



- If the correct synchronization signal is received (a signal matching your display's refresh rate), the streams will lock after a quick flash of the displays.
- If an incorrect synchronization signal is received, the streams will still be output. However, an error message will be shown saying that no sync signal was found.
- Successfully locking signals will not yield any message in WATCHOUT.
- If synchronization signal is lost, a warning message will be shown in the production interface.
- If synchronization is reconnected it might take up to 10 seconds for it to lock the streams again.
- If WATCHOUT is set to use the SDI Sync Connector but no synchronization signal is present, the streams will not be output.

MODE 3: SDI CONNECTOR

The standard SDI connectors can also be used as sync connectors. In order to synchronize your streams this way, the connector receiving the synchronization signal must be selected in the SDI settings of the WATCHOUT Display (WATCHPOINT) menu.



- Capture source can also be used as a sync signal.
- In case of incorrect synchronization signal or if no signal is present, the streams will be output but not in synchronization.
- If a machine fails to lock to the synchronization signal all streams in the cluster must be restarted, even if, for example, two out of three devices successfully locked to the synchronization.

5. EDID MANAGEMENT

Extended Display Identification Data (EDID) is a standardized data format for a display, such as a projector, screen or monitor, to describe its performance capability to a video source (in this case, WATCHPAX 60). The information exchanged in an EDID handshake includes the resolution, refresh rates and timings available in the display.

This section is a walkthrough on how to manage EDID on a WATCHPAX 60 using NVIDIA's control panel. The following functionality is provided:

- Export EDID from a display to file.
- Load EDID from file in order to emulate EDID on one or multiple outputs. This makes it possible to output a signal whether a display is connected or not.
- Unload the emulated EDID in order to switch to the EDID of a connected display device.

HINT: For fixed installations it's recommended to emulate EDID for a more robust operation. This makes the WATCHPAX independent of the power state of the connected display device(s).

ACCESS EDID MANAGEMENT SETTINGS

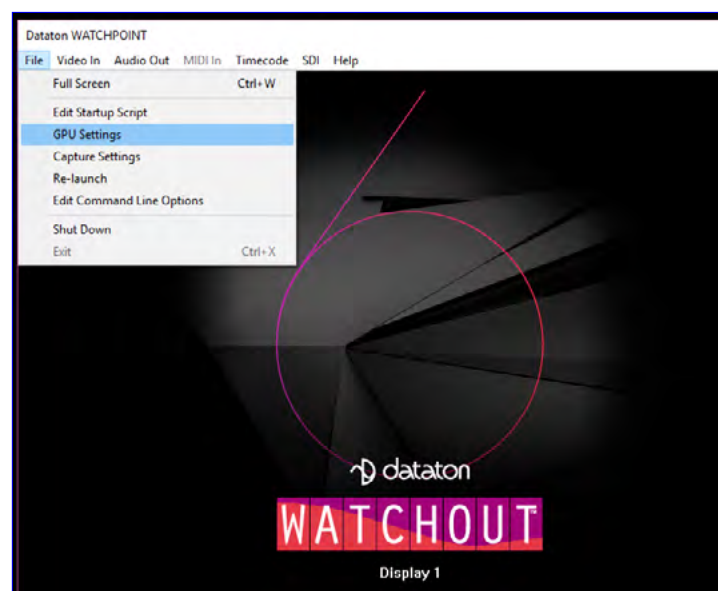
To configure and setup EDID, access each media server locally. Do this either by a *Remote Access* (from the WATCHOUT production computer) or connect a USB keyboard/mouse and screen to your WATCHPAX 60.

Connecting by Remote Access will automatically bring up the WATCHOUT Display window (WATCHPOINT). If you are using a local keyboard/mouse and screen, enter Ctrl-W to bring up this window.

You'll find more on this in the "Dataton WATCHOUT User's Guide" in the section on "Display Devices" (Chapter 2: Installation) and "Remote Access" (Chapter 4: Commands).

Follow this procedure to access EDID management settings:

1. In the menu select *File > GPU Settings*.



2. Navigate to the *Workstation >View System Topology* (figure 2).

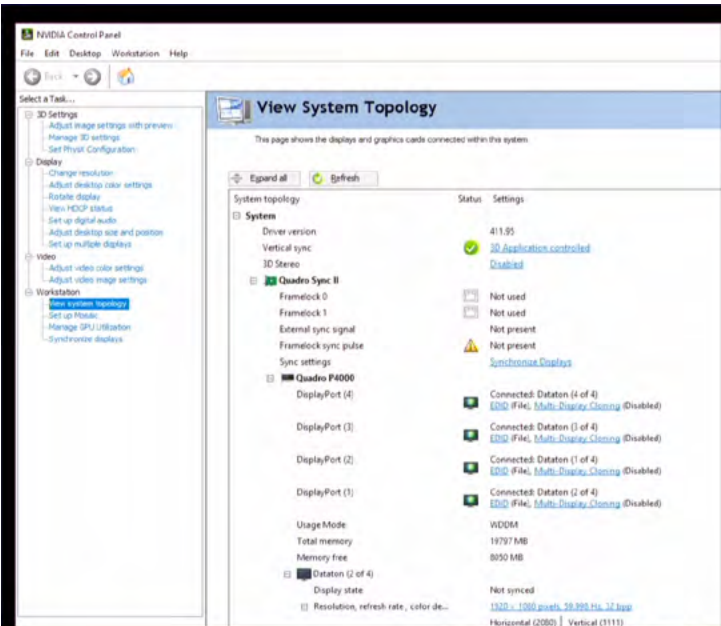


Figure 2

3. All outputs are listed within the Quadro P3000/P4000 section. Open the “Manage EDID” window by clicking the EDID link (figure 3).

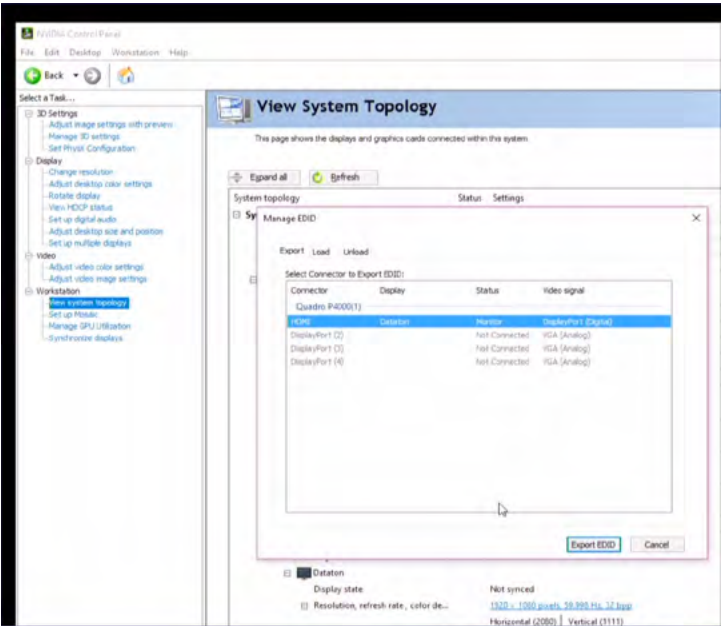


Figure 3

It’s possible to export EDID files to external USB devices or to store them locally on the W:\ drive. Files stored on the system (C:\) will not be persistent.

EXPORT EDID

To export EDID from a display, select an active display and press the Export button.

LOAD EDID

To emulate an EDID on selected display(s) from file (figure 4):

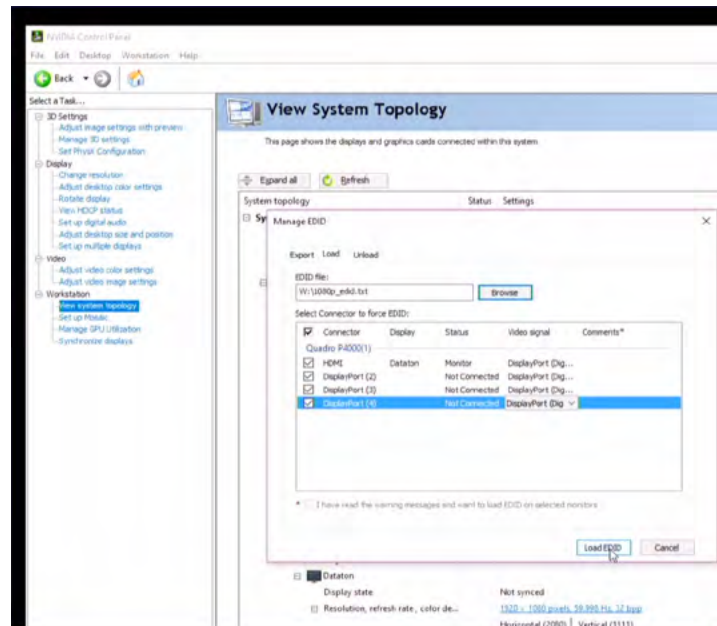


Figure 4

1. Select the "Load" tab.
2. Check the outputs to override.
3. Press the "Load EDID" button.

UNLOAD EDID

To remove the EDID emulation on selected displays (figure 5):

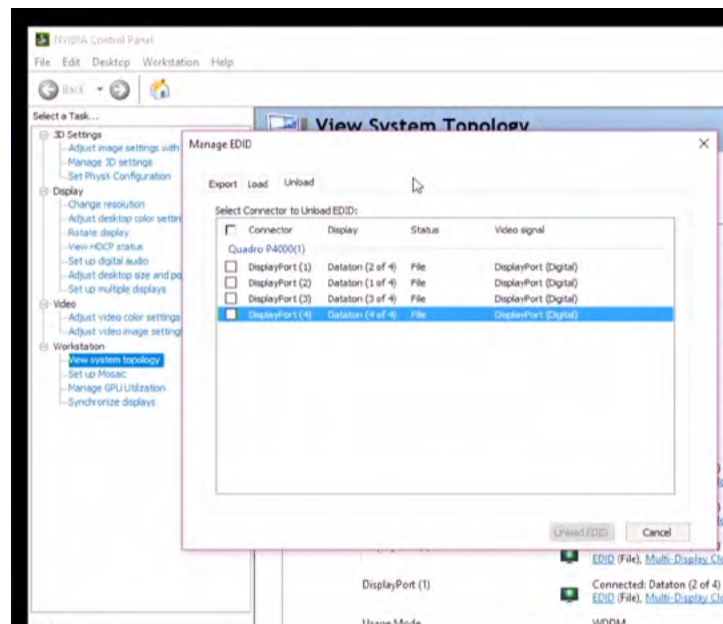


Figure 5

1. Select the Unload tab.
2. Check the outputs to unload.
3. Press the Unload EDID button.

6. WATCHPAX 60 MODEL S

WATCHOUT VERSION

Version 6.6.7 or higher.

DIMENSIONS

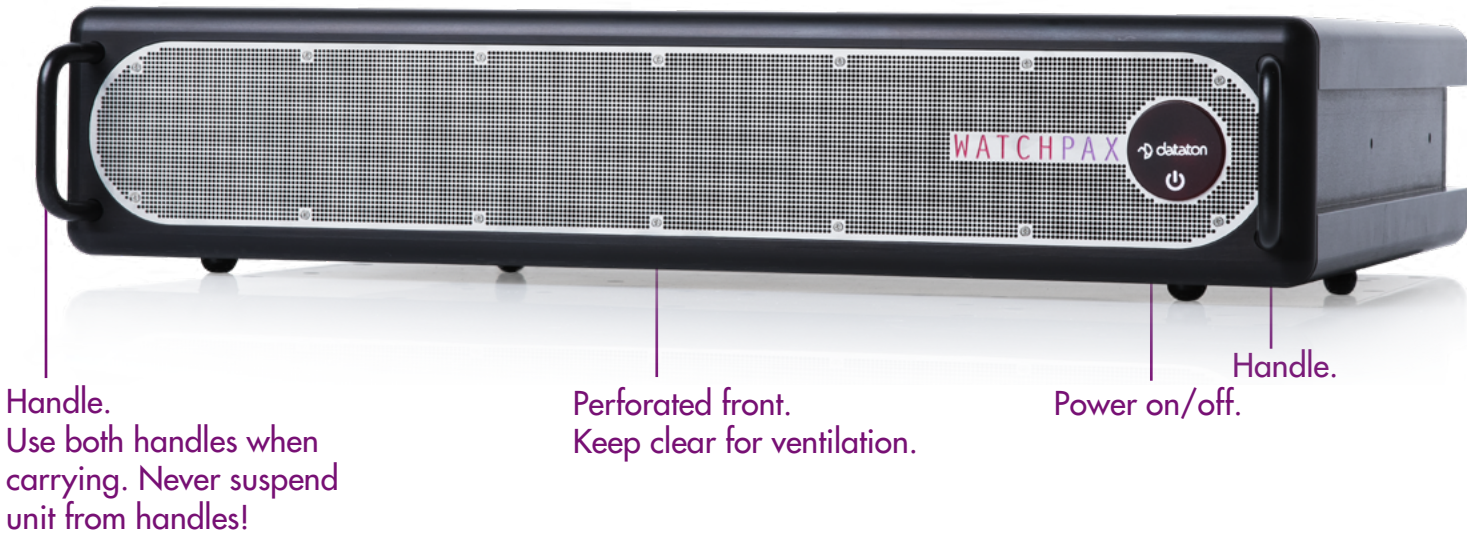
Width	448 mm
Height	90 mm
Depth	335 mm
Weight	9 850 g

SHIPPING DIMENSIONS

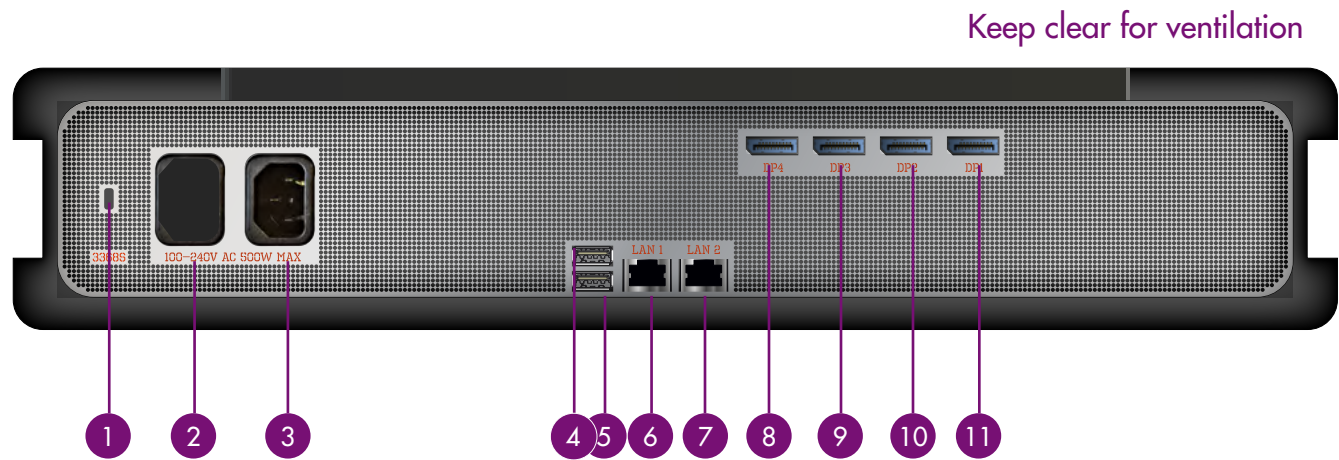
WATCHPAX 60 is shipped in a sturdy, custom-design, corrugated cardboard box with handle.
Dimensions as below:

Width	519 mm
Height	180 mm
Depth	475 mm
Weight	9 850 g + approximately 900 g (cables and packaging)

FRONT VIEW



CONNECTORS
WATCHPAX 60 model A:



CONNECTOR	DESCRIPTION
1	Kensington lock
2	Disabled power inlet
3	Power inlet IEC 60320 C14 2
4	USB 3.0 port 1
5	USB 3.0 port 2
6	RJ45 10GbE Ethernet 1
7	RJ45 10GbE Ethernet 2 Currently disabled; reserved for future use.
8	DisplayPort v1.4 - 4
9	DisplayPort v1.4 - 3
10	DisplayPort v1.4 - 2
11	DisplayPort v1.4 - 1

7. WATCHPAX 60 MODEL A

WATCHOUT VERSION

Version 6.5 or higher.

DIMENSIONS

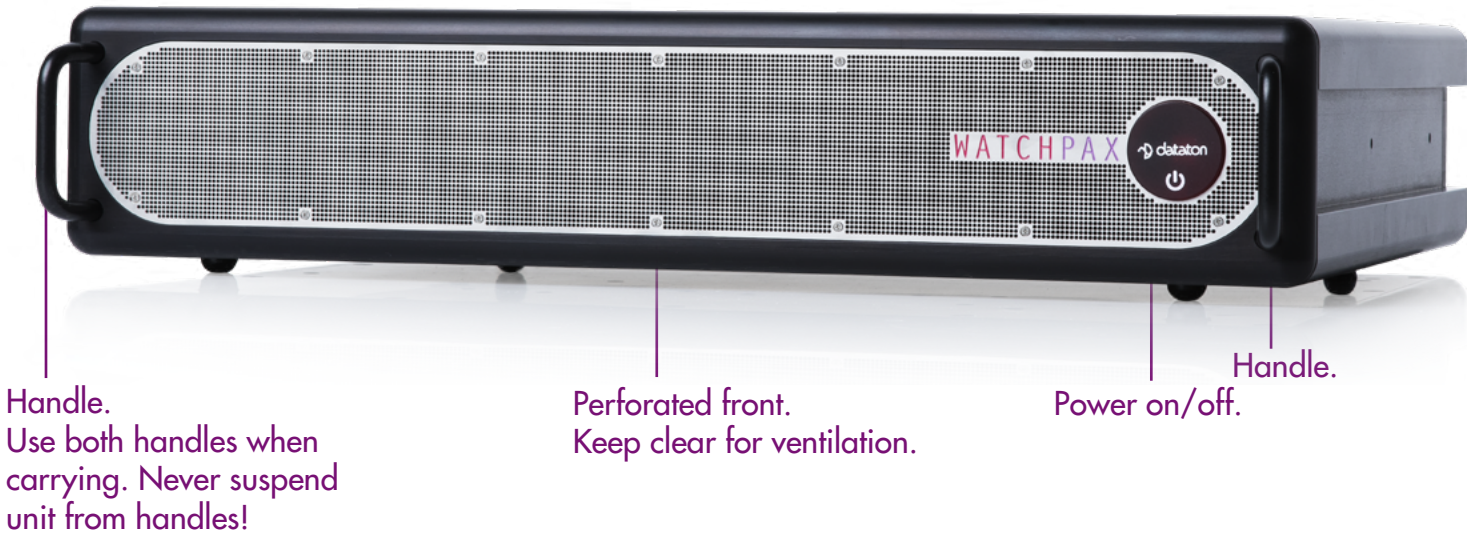
Width	448 mm
Height	90 mm
Depth	335 mm
Weight	9 850 g

SHIPPING DIMENSIONS

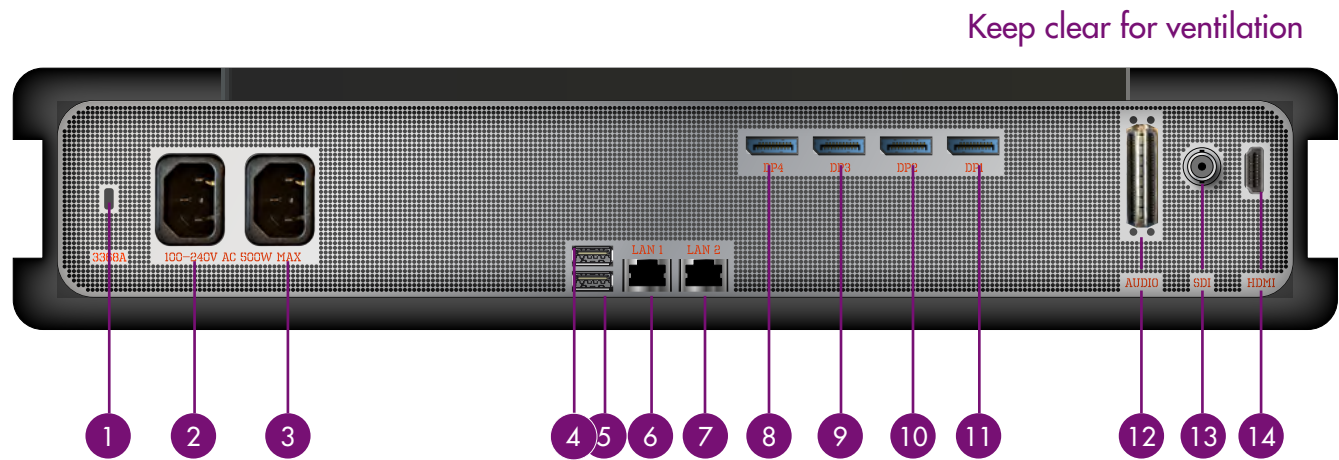
WATCHPAX 60 is shipped in a sturdy, custom-design, corrugated cardboard box with handle.
Dimensions as below:

Width	519 mm
Height	180 mm
Depth	475 mm
Weight	9 850 g + approximately 900 g (cables and packaging)

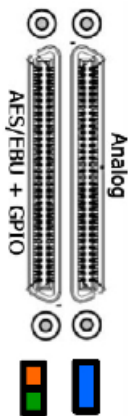
FRONT VIEW



CONNECTORS
WATCHPAX 60 model A:



CONNECTOR	DESCRIPTION
1	Kensington lock
2	Power inlet IEC 60320 C14 1
3	Power inlet IEC 60320 C14 2
4	USB 3.0 port 1
5	USB 3.0 port 2
6	RJ45 10GbE Ethernet 1
7	RJ45 10GbE Ethernet 2 Currently disabled; reserved for future use.
8	DisplayPort v1.4 - 4
9	DisplayPort v1.4 - 3
10	DisplayPort v1.4 - 2
11	DisplayPort v1.4 - 1
12	Audio input/output VHDCI (to XLR by break-out cable)
13	Capture card SDI 3G
14	Capture card HDMI 1.4



12 Connect the audio cable to the analog connector on the right (as indicated by blue here).

8. WATCHPAX 60 MODEL B

WATCHOUT VERSION

Version 6.5 or higher.

DIMENSIONS

Width	448 mm
Height	90 mm
Depth	335 mm
Weight	10 000 g

SHIPPING DIMENSIONS

WATCHPAX 60 is shipped in a sturdy, custom-design, corrugated cardboard box with handle.
Dimensions as below:

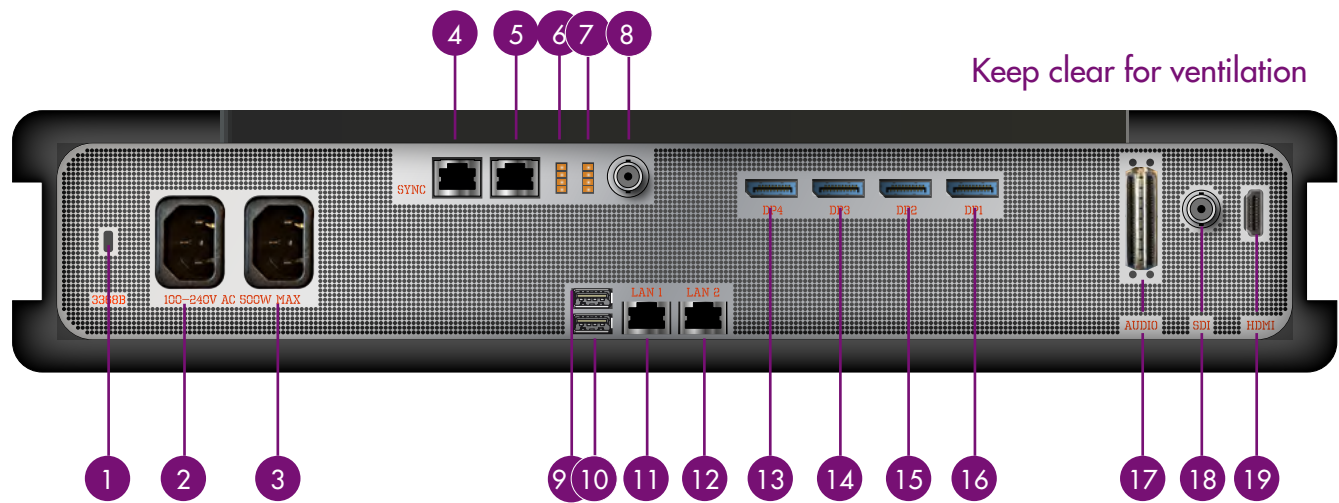
Width	519 mm
Height	180 mm
Depth	475 mm
Weight	10 000 g + approximately 900 g (cables and packaging)

FRONT VIEW

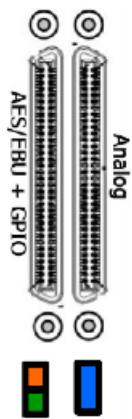


CONNECTORS

WATCHPAX 60 model B:



CONNECTOR	DESCRIPTION
1	Kensington lock
2	Power inlet IEC 60320 C14 1
3	Power inlet IEC 60320 C14 2
4	Frame-lock connector 1
5	Frame-lock connector 2
6	Status LED 2
7	Status LED 1
8	External sync
9	USB 3.0 port 1
10	USB 3.0 port 2
11	RJ45 10GbE Ethernet 1
12	RJ45 10GbE Ethernet 2 Currently disabled; reserved for future use.
13	DisplayPort v1.4 - 4
14	DisplayPort v1.4 - 3
15	DisplayPort v1.4 - 2
16	DisplayPort v1.4 - 1
17	Audio input/output VHDCI (to XLR by break-out cable)
18	Capture card SDI 3G
19	Capture card HDMI 1.4



17 Connect the audio cable to the analog connector on the right (as indicated by blue here).

9. WATCHPAX 60 MODEL C

WATCHOUT VERSION

Version 6.5 or higher.

DIMENSIONS

Width	448 mm
Height	90 mm
Depth	335 mm
Weight	10 200 g

SHIPPING DIMENSIONS

WATCHPAX 60 is shipped in a sturdy, custom-design, corrugated cardboard box with handle.
Dimensions as below:

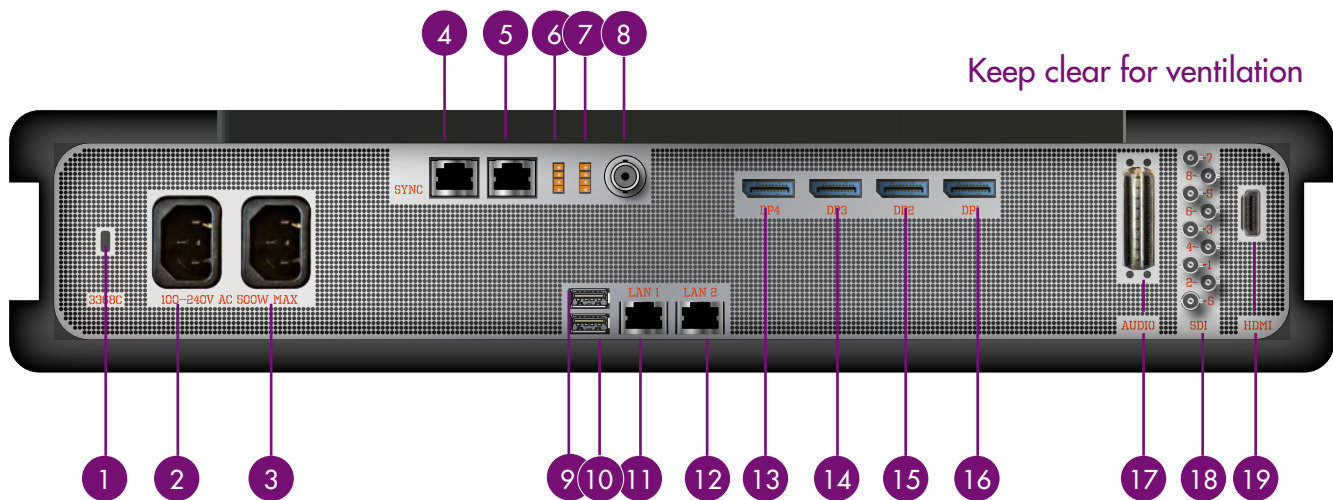
Width	519 mm
Height	180 mm
Depth	475 mm
Weight	10 200 g + approximately 900 g (cables and packaging)

FRONT VIEW

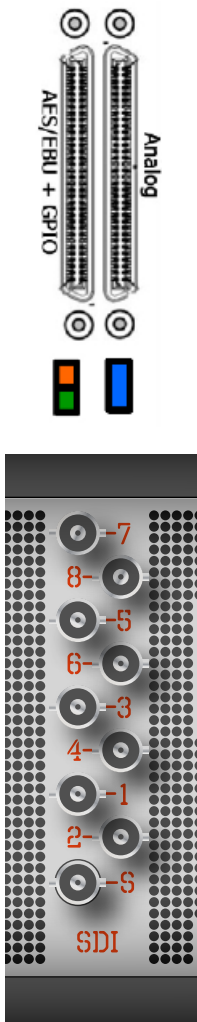


CONNECTORS

WATCHPAX 60 model C:



CONNECTOR	DESCRIPTION
1	Kensington lock
2	Power inlet IEC 60320 C14 1
3	Power inlet IEC 60320 C14 2
4	Frame-lock connector 1
5	Frame-lock connector 2
6	Status LED 2
7	Status LED 1
8	External sync
9	USB 3.0 port 1
10	USB 3.0 port 2
11	RJ45 10GbE Ethernet 1
12	RJ45 10GbE Ethernet 2 Currently disabled; reserved for future use.
13	DisplayPort v1.4 - 4
14	DisplayPort v1.4 - 3
15	DisplayPort v1.4 - 2
16	DisplayPort v1.4 - 1
17	Audio input/output VHDCI (to XLR by break-out cable)
18	Capture & playout HD-BNC
19	Capture card HDMI 1.4



17 Connect the audio cable to the analog connector on the right (as indicated by blue here).

18 Capture and playout HD-BNC.
3G SDI:
Eight independent channels that can be used either as inputs or as outputs.
12G SDI/6G SDI:
Supported by two channels (connectors 1 and 5).

10. WARRANTY, CONFORMITY AND DISPOSAL

LIMITED WARRANTY

DATATON AB ("Dataton") warrants this hardware product against defects in materials and workmanship for a period of seven hundred and thirty (730) days from the date of original retail purchase.

If you discover a defect, Dataton will, at its option, repair, replace, or refund the purchase price of this product at no charge to you, provided you return it during the warranty period, transportation charges prepaid, to the authorized Dataton vendor from whom you purchased it, any other authorized Dataton sales point in the country of the original retail purchase or to Dataton itself. More information is available from Dataton AB, see address.

When returning an item please attach your name, address, email address, a description of the problem and a copy of the bill of sale or packing list bearing the appropriate Dataton serial numbers (where applicable) as proof of the date of original retail purchase. You are also advised to first contact the vendor or Dataton.

This warranty applies only to hardware products manufactured by or for Dataton AB and labeled with the Dataton logo. This warranty does not apply if the product has been damaged by accident, abuse, misuse or misapplication, nor if the product has been opened or modified without the written permission of Dataton, nor if any serial number has been removed or defaced.

All implied warranties, including implied warranties of merchantability and fitness for a particular purpose, are limited in duration to seven hundred and thirty (730) days from the date of original retail purchase of this product. The warranty and remedies set forth above are exclusive and in lieu of all others, oral, written, express or implied.

No Dataton dealer, agent or employee is authorized to make any modification, extension or addition to this warranty.

Dataton is not responsible for special, incidental or consequential damages resulting from any breach of warranty, or under any legal theory, including lost profits, downtime, goodwill, damage to or replacement of equipment and property, and any costs of recovering, reprogramming or reproducing any program or data stored in or used with Dataton products.

Dataton AB
Teknikringen 22
SE 583 30 LINKÖPING
Sweden

Email: warranty@dataton.se

FCC NOTICE

Model: WATCHPAX 60

This device complies with Title 47 Chapter 1, Part 15, Subpart B of the Federal Communication Commission 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.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio / TV technician for help.

Do not make any changes or modifications to the equipment unless otherwise specified in the instructions. If such changes or modifications should be made, you could be required to stop operation of the equipment.

DECLARATION OF CONFORMITY

Model: WATCHPAX 60

Model number: 3368

Description: Media server

Responsible manufacturer: Dataton AB

Address: Teknikringen 22, SE-583 30 Linköping, Sweden



Dataton AB hereby declares that the product listed above, to which this Declaration of Conformity relates, complies with the standards and regulations below:

FCC Regulations Title 47 Chapter 1, part 15, subpart B, Class A:
§15.107: Conducted Emission, AC power line
§15.109: Radiated Emission

CE. Emission according to EN 55032:2012, Edition 1, class A.
Electromagnetic compatibility of multimedia equipment

Emission according to EN 61000-3-2:2014
Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)

Emission according to EN 61000-3-3:2013
Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection

Immunity according to EN 55024:2010
Edition 2 Immunity characteristics – Information technology equipment

RoHS 2011/65/EU: Restriction of the use of certain hazardous substances in electrical and electronic equipment

WEEE 2012/19/EU on waste electrical and electronic equipment

European Chemicals Regulation (REACH) 1907/2006/EC

All conformity testing has been done by a third-party testing body.

Linköping, March 20, 2019

A handwritten signature in blue ink, appearing to read "Björn".

Björn Sandlund
Founder and owner

DISPOSAL



Only for European Union and EEA (Norway, Iceland and Liechtenstein)

This symbol indicates that this product is not to be disposed of with your household waste, according to the WEEE Directive (2012/19/EU), the Battery Directive (2006/66/EC) and/or national legislation implementing those Directives.

If a chemical symbol is printed beneath the symbol shown above, in accordance with the Battery Directive, this indicates that a heavy metal (Hg = Mercury, Cd = Cadmium, Pb = Lead) is present in this battery or accumulator at a concentration above an applicable threshold specified in the Battery Directive.

This product should be handed over to a designated collection point, e.g., on an authorized one-for-one basis when you buy a new similar product or to an authorized collection site for recycling waste electrical and electronic equipment (EEE) and batteries and accumulators. Improper handling of this type of waste could have a possible impact on the environment and human health due to potentially hazardous substances that are generally associated with EEE. Your cooperation in the correct disposal of this product will contribute to the effective usage of natural resources.

For more information about the recycling of this product, please contact your local city office, waste authority, approved scheme or your household waste disposal.

11. SUPPORTED FORMATS

VIDEO CAPTURE FORMATS

HDMI INPUT (MODELS A, B, C)

The HDMI input can capture signals within the HDMI 1.4 bandwidth specification with a maximum rate of 297 Mpixels/s. The maximum capture resolution is 4096 x 2160p at 30 Hz. HDMI audio capture is not supported by WATCHOUT.

SDI INPUT

WATCHOUT can capture both interlaced and progressive formats. SDI audio capture is not supported by WATCHOUT.

SDI INPUT CAPTURE FORMATS (MODELS A, B)

RESOLUTION	FRAMES PER SECOND								
PAL	–	–	–	–	–	–	50	–	–
NTSC	–	–	–	–	–	–	–	59.94	–
720p	23.98	24	25	29.7	30	–	50	59.94	60
1080i	–	–	–	–	–	–	50	59.94	60
1080p	23.98	24	25	29.7	30	–	50	59.94	60
DCI 2K	23.98	24	25	29.7	30	48	50	59.94	60

The following SDI interfaces are supported.

VIDEO INTERFACE	SDI COMPLIANCE
SD-SDI	SMPTE 259M
HD-SDI	SMPTE 292M
3G-SDI Level A	SMPTE 424M, SMPTE 425-1
3G-SDI Level B-DS	SMPTE 424M, SMPTE 425-1

SDI INPUT CAPTURE FORMATS (MODEL C)

RESOLUTION	FRAMES PER SECOND							SINGLE LINK	
PAL	–	–	–	–	–	–	50	–	–
NTSC	–	–	–	–	–	–	–	59.94	–
720p	23.98	24	25	29.7	30	–	50	59.94	60
1080i	–	–	–	–	–	–	50	59.94	60
1080p	23.98	24	25	29.7	30	–	50	59.94	60
DCI 2K	23.98	24	25	29.7	30	48	50	59.94	60
2160i	–	–	–	–	–	–	50	59.94	60
2160p	23.98	24	25	29.7	30	–	50	59.94	60
DCI 4K	23.98	24	25	29.7	30	48	50	59.94	60

The following SDI interfaces are supported (Model C):

VIDEO INTERFACE	SDI COMPLIANCE
SD-SDI	SMPTE 259M
HD-SDI	SMPTE 292M
3G-SDI Level A	SMPTE 424M, SMPTE 425-1
3G-SDI Level B-DS	SMPTE 424M, SMPTE 425-1
6G-SDI	SMPTE 2081-10
12G-SDI	SMPTE 2082-10

VIDEO PLAYOUT FORMATS

SDI OUTPUT FORMATS (MODEL C)

NOTE: Quad-Link Quadrant mode divides a UHD image into four HD quadrants or a DCI 4K image into four DCI 2K Quadrants. This will create four independent HD-SDI or 3G-SDI Level A streams depending on framerate.

RESOLUTION	FRAMES PER SECOND								SINGLE LINK	
720p	23.98	24	25	29.7	30	–	50	59.94	60	
1080p	23.98	24	25	29.7	30	–	50	59.94	60	
DCI 2K	23.98	24	25	29.7	30	48	50	59.94	60	
2160p	23.98	24	25	29.7	30	–	50	59.94	60	
DCI 4K	23.98	24	25	29.7	30	48	50	59.94	60	

RESOLUTION	FRAMES PER SECOND								DUAL LINK	
1080p	–	–	–	–	–	–	50	59.94	60	
DCI 2K	–	–	–	–	–	48	50	59.94	60	
2160p	23.98	24	25	29.7	30	–	–	–	–	
DCI 4K	23.98	24	25	29.7	30	–	–	–	–	

RESOLUTION	FRAMES PER SECOND								QUAD LINK QUADRANT	
2160p	23.98	24	25	29.7	30	–	50	59.94	60	
DCI 4K	23.98	24	25	29.7	30	48	50	59.94	60	

RESOLUTION	FRAMES PER SECOND								QUAD LINK INTERLEAVED	
2160p	–	–	–	–	–	–	50	59.94	60	
DCI 4K	–	–	–	–	–	48	50	59.94	60	

The following SDI interfaces are supported:

VIDEO INTERFACE	SDI COMPLIANCE
HD-SDI	SMPTE 292M
Dual-Link HD-SDI	SMPTE 372M
Quad-Link HD-SDI Quadrant	SMPTE 292M
3G-SDI Level A	SMPTE 424M, SMPTE 425-1
Dual-Link 3G-SDI	SMPTE 425-3
Quad-Link 3G-SDI Interleaved	SMPTE 425-5
Quad-Link 3G-SDI Quadrant	SMPTE 424M
6G-SDI	SMPTE 2081-10
12G-SDI	SMPTE 2082-10

TIMECODE INPUT FORMATS

FORMAT	TYPE
Film	24 fps
EBU	25 fps
SMPTE	29.97 DF
SMPTE	30 ("B&W")
SMPTE	29.97 NDF

ANALOG AUDIO OUTPUT FORMATS (A, B, C)

WATCHPAX 60 can output four channels of balanced analog audio through an VHDCI to XLR breakout cable.

ANALOG AUDIO OUPUT RATES
44.1 kHz
48 kHz
88.2 kHz
96 kHz

The XLR connectors on the breakout cable are mapped in WATCHOUT according to the table below.

BREAKOUT CABLE LABELS	WATCHOUT
Left In 1	Timecode input
Right In 1	N/A, reserved for future use
Left In 2	N/A, reserved for future use
Right In 2	N/A, reserved for future use
Left Out 1	Output Channel 1
Right Out 1	Output Channel 2
Left Out 2	Output Channel 3
Right Out 2	Output Channel 4

DIGITAL AUDIO OUTPUT FORMATS (A, B, C)

WATCHPAX 60 can output multi-channel (7.1) LPCM audio embedded with DisplayPort and HDMI.

DIGITAL AUDIO OUPUT RATES
44.1 kHz
48 kHz
88.2 kHz
96 kHz
176.4 kHz
192 kHz

DISPLAYPORT OUTPUT FORMATS

WATCHPAX 60 complies with DisplayPort version 1.4 and each connector can output a resolution up to 4096 x 2160 at 120 Hz or 5120 x 2880 at 60 Hz.

ADAPTERS

The DisplayPort to HDMI 2.0 active adapters shipped with WATCHPAX 60 models A, B, C support resolutions up to 4096 x 2160 at 60 Hz.

NOTE: Adapters are not shipped with WATCHPAX 60 model S.

NOTE: The usage of passive adapters is not recommended as it may result in a lower maximum resolution.

HDCP

High-bandwidth digital content protection (HDCP) is not supported by WATCHOUT.

PLAYBACK FORMATS

SUPPORTED PLAYBACK FORMATS
MPEG-2/H.262
AVC/H.264
HAP
HAP Q
HAP Alpha
Prores 422 Proxy
Prores 422 LT
Prores 422
Prores 422 HQ
TGA
TGA + Alpha
TIFF
TIFF + Alpha

HARDWARE ACCELERATED VIDEO FORMATS

WATCHPAX 60 supports GPU-accelerated video decoding. Hardware acceleration is enabled by default in WATCHOUT and this property can be changed by the user per media item. The codecs supported are listed below.

CODEC	MAX COLOR	MAX RESOLUTION	MAX LEVEL	MAX PROFILE	FORMAT
AVC/H.264	8-bit	4096 x 4096	5.2	High	4:2:0
MPEG-2/H.262	8-bit	4080 x 4080	n/a	n/a	4:2:0

