



VIDEOJET decoder 8000

VJD-8000 | VJD-8000-N



BOSCH

en

Installation manual

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1 Safety

Documentation and software for Bosch Security Systems products can be found in the online product catalogue as follows:

- ▶ Open any browser > enter www.boschsecurity.com > select your region and your country > start a search for your product > select the product in the search results to show the existing files.
- ▶ Use the QR code on the Quick Installation Guide for direct access.

1.1 Electric shock hazard

- Never attempt to connect the unit to any power network other than the type for which it is intended.
- Use only the power supply unit that is included.
- Connect the unit to an earthed mains socket-outlet.
- Never open the housing.
- Never open the housing of the power supply unit.
- If a fault occurs, disconnect the power supply unit from the power supply and from all other units.
- Install the power supply and the unit only in a dry, weather-protected location.
- If safe operation of the unit cannot be ensured, remove it from service and secure it to prevent unauthorized operation. In such cases, have the unit checked by Bosch Security Systems.

Safe operation is no longer possible in the following cases:

- if there is visible damage to the unit or power cables,
- if the unit no longer operates correctly,
- if the unit has been exposed to rain or moisture,
- if foreign bodies have penetrated the unit,
- after long storage under adverse conditions, or
- after exposure to extreme stress in transit.

1.2 Installation and operation

- The relevant electrical engineering regulations and guidelines must be complied with at all times during installation.
- Relevant knowledge of network technology is required to install the unit.
- Pluggable devices must have an easily accessible socket-outlet installed near the equipment.
- Before installing or operating the unit, make sure you have read and understood the relevant documentation. The documentation contains important safety instructions and information about permitted uses.
- Perform only the installation and operation steps described in this manual. Any other actions may lead to personal injury, damage to property or damage to the equipment.

1.3 Maintenance and repair

- Never open the housing of the unit. The unit does not contain any user-serviceable parts.
- Never open the housing of the power supply unit. The power supply unit does not contain any user-serviceable parts.
- Ensure that all maintenance or repair work is carried out only by qualified personnel (electrical engineers or network technology specialists). In case of doubt, contact your dealer's technical service center.

1.4 Firmware and software

- VIDEOJET decoder 8000 may only be operated with the installed firmware and software products.
- It is not allowed to install additional firmware or software other than intended.

2 Short information

2.1 About this manual

This manual is intended for persons responsible for the installation and operation of a VIDEOJET decoder 8000 unit. International, national and any regional electrical engineering regulations must be followed at all times. Relevant knowledge of network technology is required. The manual describes the installation of the unit.

2.2 Conventions in this manual

In this manual, the following symbols and notations are used to draw attention to special situations:

**Warning!**

Use of this signal word and symbol indicates that failure to follow the safety instructions described may endanger persons. It indicates a hazardous situation which, if not avoided, could result in death or serious injury.

**Caution!**

Use of this signal word and symbol indicates that failure to follow the safety instructions described may endanger persons. It indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

**Notice!**

Use of this signal word and symbol indicates that failure to follow the safety instructions described may cause damage to the unit or other equipment or may lead to data loss.

2.3 Intended use

The VIDEOJET decoder 8000 video decoder receives and decodes video and audio signals over data networks (Ethernet LAN, Internet). It displays video from Standard Definition (SD), High Definition (HD), 4K Ultra High Definition (UHD), and Megapixel (MP) cameras and encoders using H.264 or MPEG-4 encoding at up to 60 frames per second over IP networks. The unit is intended for use with CCTV systems. Other applications are not permitted.

In the event of questions concerning the use of the unit which are not answered in this manual, please contact your sales partner or:

Bosch Sicherheitssysteme GmbH

Robert-Bosch-Ring 5

85630 Grasbrunn

Germany

www.boschsecurity.com

2.4 EU Directives

VIDEOJET decoder 8000 complies with the requirements of EU Directives 89/336 (Electromagnetic Compatibility) and 73/23, amended by 93/68 (Low Voltage Directive).

2.5 Rating plate

For exact identification, the model name and serial number are inscribed on the bottom of the housing. Please make a note of this information before installation, if necessary, so as to have it to hand in case of questions or when ordering spare parts.

3 System overview

3.1 Parts included

- 1 VIDEOJET decoder 8000, video decoder
- 1 international power supply unit with EU and US power cord
- 1 monitor mounting kit
- 1 Quick Installation Guide
- 1 Safety Hints



Notice!

Check that the delivery is complete and in perfect condition. Arrange for the unit to be checked by Bosch Security Systems if you find any damage.

3.2 Overview of functions

Video decoder

VIDEOJET decoder 8000 displays video from Standard Definition (SD), High Definition (HD), 4K Ultra High Definition (UHD), and Megapixel (MP) cameras and encoders using H.264 or MPEG-4 encoding at up to 60 frames per second over IP networks.

It can flawlessly decode two 4Kp30 streams at 20 Mbps, or six 1080p30 streams, or eight H.264 720p60 streams, or twelve H.264 720p30 streams, all at 10 Mbps. Alternatively, it can simultaneously decode 30 H.264 SD streams at up to 6 Mbps from fast-moving AUTODOME cameras with the highest clarity. When H.264 SD streams at up to 2.5 Mbps from medium activity scenes are connected, up to 60 streams can be displayed.

VIDEOJET decoder 8000 can drive two 4K UHD displays directly, each with an independently configurable screen layout, and so is ideally suited for applications with flat-screen monitor walls at a moderate cost-per-monitor.

The system is enclosed in a specially designed housing. It can be directly mounted to the back of a monitor, using the 100 mm (3.937 in) VESA mount option.

Compact in size in relation to its decoding power, VIDEOJET decoder 8000 is perfect for any display application that requires space-saving solutions.

Remote control

Control the viewing mode remotely and establish the video connections using comprehensive Bosch video management systems.

Operating system

VIDEOJET decoder 8000 is based on the latest Intel fifth generation Core i3 CPU. The system has a 64 GB SSD module as boot medium for operating system and application. It uses a Gigabyte Ethernet port.

The system runs a tailored and Bosch-branded Microsoft Windows 8.1 embedded operating system and Monitor Wall software based on UHD-capable VideoSDK 6. Making use of Intel's hardware decoding accelerators, the software is fine-tuned for 4K UHD and MP video decoding support.

VIDEOJET decoder 8000 provides two Mini DisplayPorts, both capable of driving up to 4K UHD monitors simultaneously.

High performance

Transmit 4K UHD and MP IP video to a high-performance VIDEOJET decoder 8000 and present it with ultimate clarity on large, flat-screen HD monitors, for example, high-performance 19" to 55" Bosch HD LCD monitors.

VIDEOJET decoder 8000 is capable of flawlessly decoding two 4Kp30 streams at 20 Mbps, or six 1080p30 streams, or eight 720p60 streams, or twelve 720p30 streams, all at 10 Mbps, displayed in one of the pre-defined and on-the-fly switchable layouts. It can handle up to 30 SD streams at up to 6 Mbps with full resolution and frame rate, and display it in flexible layouts on both monitors.

At a lower resolution, bit rate, or frame rate, the decoder is capable of displaying up to 60 video streams, arranged in various selectable screen layouts.

Layouts can be switched at any time during operation, initiated by the controlling video management system. Layout switching can be based on alarm scenarios.

VIDEOJET decoder supports landscape and portrait video and monitors. Layouts will adapt automatically to optimally utilize the available screen space.

Decoding performance

Encoding	Streams	Resolution	Max. bit rate
H.264 MP	2	12MPp20	20 Mbps
H.264 4K UHD	2	2160p30	20 Mbps
H.264 HD	6	1080p30	10 Mbps
	8	720p60	10 Mbps
	12	720p30	10 Mbps
H.264 SD	30	4CIF/432p	6 Mbps
	60	4CIF/432p	2.5 Mbps

Access security

The decoders offer various security levels for accessing the network, the unit, and the data channels. System access is password-protected with two levels.

Malware resistance

VIDEOJET decoder has been designed to be resistant to viruses and other malware. To prevent security holes, the installed Bosch software limits transactions to operation and maintenance and the embedded operating system is tailored to the needs. No other than Microsoft and Bosch software is running on the decoder. Its firewall performs at the highest security level and allows communication only for a minimum of needed services. All access is password-protected, USB and other storage devices are disabled, and update files are authenticated and encrypted, thus putting robustness against malicious software to the highest degree.

Easy upgrade

Remotely upgrade the decoder whenever new firmware or software becomes available. This ensures up-to-date products, thus protecting investment with little effort.

Summary

VIDEOJET decoder 8000 provides the following main functions:

- Video and audio reception over IP data networks
- H.264 or MPEG-4 decoding at up to 60 frames per second
- Decoding of H.264 High Definition streams for up to six with 1080p30, or eight with 720p60, or twelve 720p30 streams, all at 10 Mbps, at the same time
- Decoding of up to 30 H.264 Standard Definition streams at up to 6 Mbps at the same time.
- Integrated Ethernet port (10/100/1000 Base-T)
- Configuration and remote control of all internal functions via TCP/IP, also secured via HTTPS
- Password protection to prevent unauthorized connection or configuration changes
- Convenient maintenance via uploads
- Flexible encryption of control and data channels
- Bidirectional audio (mono) via Mini DisplayPort **DP1**
- Audio encoding according to international standards G.711 and L16

3.3 Connections, controls and displays



- 1 SSD LED
lights orange on SSD activity
- 2 Power LED
lights up blue when the unit is switched on
- 3 Power switch
to turn the unit on or off
- 4 DC power connector
for connecting the power supply unit that is included
- 5 DisplayPort **DP1**
1 of 2 Mini DisplayPorts, also for audio transmission
- 6 RJ45 socket **ETH**
for connecting to an Ethernet LAN (local network), 10/100/1000 MBit Base-T
- 7 2 ports **USB**
two dual USB 3.0
- 8 DisplayPort **DP2**
1 of 2 Mini DisplayPorts
- 9 Kensington lock

See also

- LEDs, page 19

4 Installation

4.1 Preparations

VIDEOJET decoder 8000 and the power supply unit are both intended for use indoors only. Select a suitable location for installation that guarantees to meet the environmental conditions.



Notice!

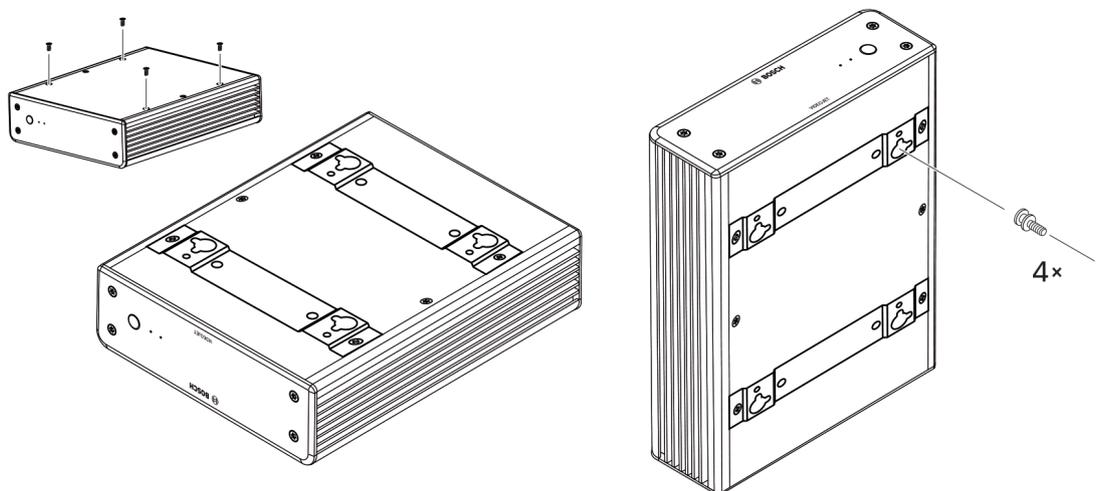
The ambient temperature for the unit must be between 0 and +50 °C (+32 and +122 °F). The relative humidity must not exceed 90%.

The unit and the power supply unit generate heat during operation, so you should ensure that there is adequate ventilation and enough clearance between both units and heat-sensitive objects or equipment. Please note the maximum heat value of 221 BTU/h per unit without the power supply.

Please ensure the following installation conditions:

- Do not install the unit or the power supply unit close to heaters or other heat sources. Avoid locations exposed to direct sunlight.
- All ventilation openings must be kept free from blockings. Do not stack several units one on top of each other.
- Allow sufficient space for running cables.
- Ensure that both the unit and the power supply unit have adequate ventilation. Bear the total heat output in mind, particularly when installing multiple units in a switch cabinet.
- When making connections, use only the cables supplied or use appropriate cables immune to electromagnetic interference.
- Position and run all cables so that they are protected from damage, and provide adequate cable strain relief where needed.
- Avoid impacts, blows, and severe vibrations that exceed the specification limits, as these can irreparably damage the unit.

4.2 Mounting



The decoder comes with four stands. Place the unit upon an appropriate flat surface from which it cannot fall down.

As an alternative, you can mount the decoder to an approved monitor using the supplied mounting kit.

**Caution!**

Injuries by falling equipment

The mounting location must be able to reliably hold the unit. The load-bearing capacity must be adequate for four times the weight of the unit.

If mounting the unit to the back of a monitor, use only monitors with standard VESA mount.

When mounting the unit on the rear side of a monitor, ensure that there is adequate ventilation and enough clearance between both units and walls or other monitors, especially with several monitors mounted side by side on a wall.

1. Remove the four stands on the bottom of the decoder. Put the screws aside for step 3. Retain the stands for future usage.
2. Place the mounting brackets supplied as shown in the picture. Make sure that the keyholes point in the same direction.
3. Fasten the brackets with the screws.
4. Fasten the VESA mounting screws supplied to the monitor.
5. Hook the keyholes onto the VESA screw heads and slide the decoder down to secure. Preferably, mount the decoder with connections facing downwards to ensure best ventilation.

5 Connection

5.1 Sequence of connections

**Notice!**

Do not connect the decoder to the power supply until all other connections have been made. Otherwise the automatic assignment of the IP address will fail and a faulty monitor resolution will be set. This may lead to serious damage of the unit.

5.2 Connecting monitors

You must connect a suitable monitor to the decoder. If mounting the unit to the back of a monitor, use only monitors with standard VESA mount.

The unit provides two Mini DisplayPorts as monitor outputs which can be used at the same time.

- ▶ Connect each monitor using the respective monitor cable or adapter.

VGA connections are not supported.

5.3 Establishing the network connection

You must connect the decoder to a 10/100/1000 Base-T network using a standard UTP category 5 cable with RJ45 plugs.

- ▶ Connect the unit to the network via the RJ45 socket.

When the decoder is powered after finalizing all connections, the LEDs on the RJ45 socket light up to indicate that the network connection has been set up correctly. Flashing green, the left LED signals that data packages are being transmitted over the network.

See also

- *LEDs, page 19*

5.4 Connecting audio

The decoder has no dedicated audio port. Audio is transmitted digitally via monitor output **DP1**. There is no audio transmission for monitor output **DP2**.

5.5 Connecting the power supply

Power is supplied via a separate power supply unit that is part of the delivery. It offers two power cords, one for EU and one for US.

**Notice!**

Use only the power supply unit that is included, together with the suitable power cord. Connect the unit to an earthed mains socket-outlet.

Do not connect the decoder to the power supply until all other connections have been made.

1. Connect the decoder to the power supply unit.
2. Select the suitable power cord and plug this into the power supply unit and then into the mains.

The unit is now ready for use.

5.6 Power on/power off

VIDEOJET decoder 8000 is equipped with a power switch on its front panel.

The VIDEOJET decoder 8000 automatically starts up when connected to mains power. The blue LED on the front next to the switch lights up. During the boot process, the orange LED flashes.

1. Switch on the monitor in order to see the user interface after the boot-up procedure.
2. To switch off, press the power switch. The blue LED turns off.
3. Press the power switch again to switch on the unit.

All information regarding the functions and the operation can be found in the relevant documentation of Monitor Wall, Bosch Video Management System, or Video Client.

See also

- *LEDs, page 19*

6 Configuration

This chapter is intended for the administrator of the video management system. The setup process depends on the video management system in use. Refer to the corresponding documentation for details. In this manual, the setup with the Bosch Video Client system is explained as example.

6.1 Setting up the decoder with Configuration Manager

Before you can operate the unit within your network, it must have a valid IP address for your network and a compatible subnet mask.



Notice!

As a default DHCP is enabled in the unit's network settings.

With an active DHCP server in the network you must know the IP address assigned by the DHCP server to operate the unit.

The following default address is preset at the factory: 192.168.0.1
For the latest version of the Configuration Manager, go to <http://www.boschsecurity.com> and download it from the Software tab of the corresponding product page.
In Configuration Manager, the decoder currently is detected in the same way as other hardware, various information is displayed, and further configuration options are provided. In the following, the configuration pages found in the Configuration Manager for the decoder are listed, and the different settings explained.



Notice!

Changes do not become effective until you click in the toolbar.

Find more information in the documentation for the Configuration Manager.

6.1.1

Unit Access tab

Identification

In this group, assign a unique name and ID for the decoder in order to make administering of multiple units easier in larger installations.

Password

In this group, you can protect the decoder against unauthorized access.

The decoder works with two password levels. The **service** level is the highest level of authorization. With this level of access, after entering the required password, users can use all functions of the decoder and change all configuration settings. The **user** level enables users to make and break connections or switch layouts, but does not provide access to configuration.

Device access (main tab My Devices only)

This group controls access from the Configuration Manager to the decoder. Here, you can configure settings to determine which protocol and which HTTP port are used for communication between the Configuration Manager and the decoder.

If the decoder is password-protected, the correct user name and password must be entered here.

Version information

In this group, you can view the hardware, firmware versions and serial number of the decoder.

6.1.2

Advanced tab

In the **Video windows** group, you edit the default display of the cameos. Cameos are the viewlets which show the video stream in your video management system.



Notice!

The settings in this area apply to all cameos. You cannot configure settings here for individual cameos.

Ignore video aspect ratio

With this parameter you define the handling if the cameo and the video stream aspect ratio are not matching. Choose **Off** to display the original video stream aspect ratio; unused cameo space is blackened. Choose **On** to use the complete cameo; overhanging video is cut off.

Aspect ratio

Select the default aspect ratio for cameos. Choose the ratio that is appropriate for most of your video sources.

Metadata

Define if you want to display metadata overlays in the video. Metadata overlays will only be shown if provided with the connected video stream.

Video smoothing

Due to network jitter decoded videos might be jerky. You can improve the smoothness with the disadvantage that the video display is delayed. The higher the selected value, the smoother the video but the greater the time delay. Select **0** (zero) to disable video smoothing.

Distance between cameos

Set your preferred distance between the cameos.

Reconnect on restart

If you enable this parameter the previous session is restored anytime you restart the decoder. If **Reconnect on restart** is disabled connections must be manually reestablished after restarting the decoder.

Number of decoders

Define the maximum number of cameos limiting the number of possible connections, for example to match the licensed channels of your video management system.

Destination

Set the password to restrict connections between decoders and video sources. Only video sources which have that password entered as **Destination password**, can setup a connection to the decoder.

It can be used as a general password. Find more information in the documentation for the video sources.

Display resolution

By default, **Resolution adaptation** is set to automatic mode. Thus, on start the optimum resolution for the display device is selected.

The manual mode should only be used for project-specific adaptations by personnel qualified by Bosch.

6.1.3

Network Access tab

In this area, you define the network settings for the decoder.

Device IP address

In this box, enter an IP address that is valid in the network.

Subnet mask

Enter an appropriate subnet mask for the IP address.

Gateway address

If required, enter an appropriate gateway address.

**Notice!**

A new IP address, or a new subnet mask or gateway address, does not become valid until the decoder is restarted.

After entering all required addresses, it is necessary to restart the decoder:

1. In the toolbar, click .
2. Confirm the restart.
3. After restart, the software is available for use under the new addresses.

6.2**Integrating the decoder into the video system**

In order to integrate the decoder into a video management system which only operates the decoder, relevant settings can be made with the Configuration Manager.

1. Start the decoder.
2. Start Configuration Manager on a separate PC.
3. Configuration Manager automatically scans the network for compatible devices. The software detects the decoder and lists it in the main tab **Devices**.
4. In the list of identified devices, right-click the entry for the decoder.
The pop-up menu appears.
5. Select the **Add to System...** command from the pop-up menu.
The **Add Device to System** dialog box is displayed.
6. You can select an existing group into which you want to integrate the decoder.
To create a new group, enter a name for the group.
You can also continue without selecting or creating a group.
7. Click **OK**.
8. Switch to the main tab **My Devices**.
The decoder appears in the list of devices assigned to the system.

6.3**Configuring the decoder with Video Client**

For a detailed description to integrate the software in the Video Client application, see the Video Client documentation.

Monitor wall tab

You can only set up a monitor wall if you have added decoders to your system. The available decoders are listed in the **Decoders** box. Decoders that belong to a site are only listed if the site is connected.

Note that this tab is not available if you have used direct logon.

1. Drag a decoder from the **Decoders** box to a free position on the monitor wall grid.

Alternatively, select a decoder and a free position and click .

2. Drag a decoder in the grid to a new position to rearrange the grid.

3. To free a position, select it and click . The decoder is removed from the grid and listed in the **Decoders** box.

7 Troubleshooting

7.1 Contact

If you are unable to resolve a malfunction, please contact your supplier or systems integrator, or go directly to Bosch Security Systems Customer Service.

The following tables are intended to help you identify the causes of malfunctions and correct them where possible.

7.2 General malfunctions

Malfunction	Possible causes	Recommended solution
No image on the monitor.	Monitor settings.	Check the input selection at the monitor.
	Faulty cable connections.	Check all cables, plugs and connections.
	Monitor fault.	Connect another monitor to the unit or use another monitor connection.
No audio.	Hardware fault.	Check that all connected audio units are operating correctly.
	Faulty cable connections.	Check all cables, plugs and connections.
	Wrong DP port used.	Check that connection uses DP1 ; DP2 does not support audio.
The unit is not operational after a firmware upload.	Power failure during programming by firmware file.	Have the unit checked by Customer Service and replace it, if necessary.
	Incorrect firmware file.	Have the unit checked by Customer Service and replace it, if necessary.
The power light is not lit.	Unit not switched on.	Press the main switch on the front panel.
	Unit not connected to the power supply unit.	Check all cables, plugs and connections.
	Power supply unit not connected to the mains outlet.	Check all cables, plugs and connections.

7.3 LEDs

The unit has LEDs on its front and rear panels that show the operating status and can give indications of possible malfunctions:

Find the following LEDs on the front panel:

Power LED

Off: The unit is switched off or not connected to the power supply.

Lights up blue: The unit is switched on.

SSD LED

Off: The unit's SSD is not accessed.

Flashes orange: The unit's SSD is accessed.

Find the following LEDs on the rear panel:

RJ45 socket LEDs

Left LED: Off: LAN connection not established.
Green: LAN connection established.
Blinking green: LAN activity occurring.

Right LED: Off: 10 Mbps data rate.
Green: 100 Mbps data rate.
Yellow: 1000 Mbps data rate.

8 Maintenance

8.1 Updates

Firmware and software updates are carried out via the Configuration Manager application or other management systems in use. Please refer to the relevant documentation.

8.2 Repairs

- Never open the housing of the unit. The unit does not contain any user-serviceable parts.
- Never open the housing of the power supply unit. The power supply unit does not contain any user-serviceable parts.
- Ensure that all maintenance or repair work is carried out only by qualified personnel (electrical engineers or network technology specialists). In case of doubt, contact your dealer's technical service center.

9 Decommissioning

9.1 Transfer

VIDEOJET decoder 8000 should only be passed on together with this installation manual.

9.2 Disposal

Your Bosch product is designed and manufactured with high-quality materials and components which can be recycled and reused.



This symbol means that electrical and electronic equipment, at their end-of-life, should be disposed of separately from your household waste.

In the European Union, there are separate collection systems for used electrical and electronic products. Please dispose of this equipment at your local community waste collection/recycling center.

10 Technical data

10.1 Electrical

Power supply	Wide-range, external, included in the box
Input voltage	100 to 240 V AC, 50/60 Hz
Power consumption	Approx. 15 W, 65 W max

10.2 Mechanical

Dimensions (H × W × D)	47.3 × 150.6 × 186 mm (1.862 × 5.929 × 7.323 in), without stands
Weight	Approx. 1.7 kg (3.7 lb)
VESA mount	100 × 100 mm (3.937 × 3.937 in)
Video	2 × Mini DisplayPort, no VGA support
Audio	Audio is transmitted digitally via monitor output DP1 .
Front indicators	2 × LED (power, SSD)
Rear connectors	1 × DC power connector 2 × dual USB 3.0 1 × Ethernet port 2 × Mini DisplayPort

10.3 Environmental conditions

Operating temperature	0 °C to +50 °C (+32 °F to +122 °F)
Relative humidity	0 to 90% atmospheric humidity, non-condensing
Thermal value	Approx. 51 BTU/h, 221 BTU/h max

10.4 Certifications and approvals

Safety	IEC 60950
Electromagnetic compatibility	EN55022 EN55024 FCC 47 CFR Chapter 1 Part 15
Approvals	CE, UL

10.5 Standards

Video	H.264 (ISO/IEC 14496-10), MPEG-4
Video data rates	Up to 20 Mbps per stream (MP)
GOP structure	I, IP, IBBP
Monitor resolutions	DP: 3840 × 2160 (UHD) at 60 Hz
Audio	G.711: 300 Hz to 3.4 kHz L16 (reception only): 300 Hz to 6.4 kHz

Audio data rate	G.711: 80 kbps at 8 kHz sampling rate L16: 640 kbps at 16 kHz sampling rate
Signal-to-noise ratio	> 50 dB
Ethernet	10/100/1000 Base-T, auto-sensing, half/full duplex, RJ45
Protocols	IPv4, UDP, TCP, HTTP, HTTPS, RTP/RTCP, IGMP V2/V3, ICMP, ARP, DHCP, APIPA (Auto-IP, link local address), NTP (SNTP), digest authentication
Encryption	TLS 1.0, SSL, 3DES, AES

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