VIDEOJET decoder 7000

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Invented for life

- ▶ HD, 4K UHD and MP decoding of H.264 and H.265 streams
- ▶ Flexible monitor layouts
- ▶ Directly drives up to two 4K UHD monitors
- ▶ Displays VCA metadata overlays
- ▶ Compact size and VESA mount

VIDEOJET decoder 7000 displays video from Standard Definition (SD), High Definition (HD), 4K Ultra High Definition (UHD), and Megapixel (MP) cameras and encoders using H.264, H.265 or MPEG-4 encoding at up to 60 frames per second over IP networks.
Its scalable decoding technology and performance management architecture makes it easy for operators to simply connect cameras, regardless of resolution, bitrate, or frame rate. It automatically scales resources, distributing them over the connected streams to produce the best possible performance.
VIDEOJET decoder 7000 can drive two HD or 4K UHD displays directly, each with an independently configurable screen layout, making it ideally suited for applications with flat-screen monitor walls at a moderate cost-per-monitor.
Use the Bosch Video Management System or the Bosch Video Client to establish video connections and control the viewing mode remotely.
Compact in relation to its decoding power, VIDEOJET decoder 7000 is perfect for any display application that requires space-saving solutions. Its fanless design is durable without the need for service.

System overview

VIDEOJET decoder 7000 is based on Intel's seventh generation Core i3 CPU. The system has a 64 GB SSD module to store the operating system and application. The system runs a tailored and Bosch-branded Microsoft Windows 10 IoT Enterprise 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 HD, 4K UHD and MP video decoding support.
VIDEOJET decoder 7000 provides an HDMI and a DisplayPort (via USB-C connector) output, both capable of driving monitors of up to 4K UHD simultaneously. The device utilizes a 10/100/1000Base-T port.
The system is enclosed in a specially designed housing. It can be directly mounted to the back of a monitor or wall-mounted, using the 100 mm (3.937 in) VESA mount option.

Functions

High performance

Transmit 4K UHD and MP IP video to a high-performance VIDEOJET decoder 7000 and present it with ultimate clarity on large, flat-screen HD monitors, for example, high-performance 19 in. to 55 in. Bosch HD LCD or LED monitors.

VIDEOJET decoder 7000 is capable of flawlessly decoding up to four 2160p30 streams at 32Mbps or up to ten 1080p30 streams at 8Mbps - displayed in one of the pre-defined and on-the-fly switchable layouts. It can handle up to 28 SD streams at up to 2Mbps, and display it in flexible layouts.

At a lower resolution, bit rate, or frame rate, the decoder is capable of displaying even more 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 7000 supports landscape and portrait video and monitors. Layouts will adapt automatically to optimally utilize the available screen space.

Overheating protection

VIDEOJET decoder 7000 provides optimal performance when operated within its standard temperature range, while providing protection against thermal overload.

When ambient temperatures increase, VIDEOJET decoder 7000 reduces the system load dynamically to match the maximum possible performance without overheating.

In case of exceeding the maximum temperature due to environmental conditions, the device will shutdown the system to protect it from hardware faults.

Decoding performance

The table below shows the maximum values which provide a guideline for performance design. There are dependencies that impact the overall performance, especially when combining various streams and resolutions (for example, upscaling to monitor resolution and frame rate). In an overload situation, VIDEOJET decoder 7000 may drop frames to display overall video as smoothly as possible.

Note that the upscaling of video, for example SD or HD video to be displayed on a 4K UHD monitor, draws performance that reduces the decoding capabilities. Also note that dual display frame rate at 4K UHD is limited to 30Hz.

Resolution	3840 x 2160 (2160p30)	1920 x 1080 (1080p30)	1280 x 720 (720p30)	768 x 432 (432p30)
Max. bit rate / stream	32Mbps	8Mbps	4Mbps	2Mbps
GOP structure	IP			

Operating conditions	25ºC, desktop standing			
1x 1080p@60Hz monitor	4	10	18	28
2x 1080p@60Hz monitor	3	8	14	22
2x 1440p@60Hz monitor	3	8	14	22
1x 2160p@30Hz monitor*	3	8	12	20
2x 2160p30Hz monitor*	1	3	6	6
1x 2160p@60Hz monitor	2	8	12	20
2x 2160p@60Hz monitor*	2	8	12	20

Operating conditions	45ºC, standing, with airflow (air-conditioned cabinet)			
2x 1080p@60Hz monitor	3	8	14	22

Operating conditions	45ºC, upright (VESA mount)			
2x 1080p@60Hz monitor	2	6	10	16

*Falls back to 1440p@60Hz if not supported by monitor.

Access security

The decoders offer various security levels for accessing the network, the device, and the data channels. System access is password-protected for operator and administrator levels.

VIDEOJET decoder 7000 supports TLS secured and encrypted communication. Also the payload channels - video, audio, metadata - are then AES encrypted.

IP Matrix for PC-free stand-alone applications

The built-in IP Matrix functionality, together with a connected keyboard, allows VIDEOJET decoder 7000 to run as a stand-alone system. An operator can manage up to 32 cameras via the keyboard without any PC or management system required.

System setup is quickly done with Configuration Manager. After that, no PC is required to run the IP Matrix.

For larger IP Matrix systems, cluster it with up to 3 other decoders combining their number of cameras, keyboards, and displays, all managed by up to 4 operators.

A management system can integrate and control an IP Matrix system to keep operators' full awareness of alarm scenarios.

Malware resistance

VIDEOJET decoder 7000 has been designed to be highly resistant to viruses and other malware. The embedded Microsoft operating system and Bosch application software limits transactions to operation and maintenance only. No other software can be installed on the decoder.

The embedded firewall operates at the highest security level and only allows for the operation of services required by the installed software. All access is password protected, USB and other external storage devices are disabled, and update files are encrypted and authenticated. This provides a high degree of robustness against malware.

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.

Certifications and approvals

Safety

Region	Number
	IEC 60950

Electromagnetic compatibility

Region	Number
EU	EN55022 ITE
	EN55024 ITE
US	FCC 47 CFR Chapter 1 Part 15

Approvals

Region	Regulatory compliance/quality marks
EU	CE VIDEOJET decoder 7000
US	UL VIDEOJET decoder 7000

Installation/configuration notes

Connectors and indicators

1	SSD activity (orange)	6	Ethernet
2	Power indicator (blue)	7	Dual USB 3.0
3	Power switch	8	DisplayPort (via USB-C)
4	DC power connector	9	Kensington lock
5	HDMI		

Dimensions

150,6 mm	
5.9291 in	

47,3 mm
1.8622 in

186 mm
7.3228 in
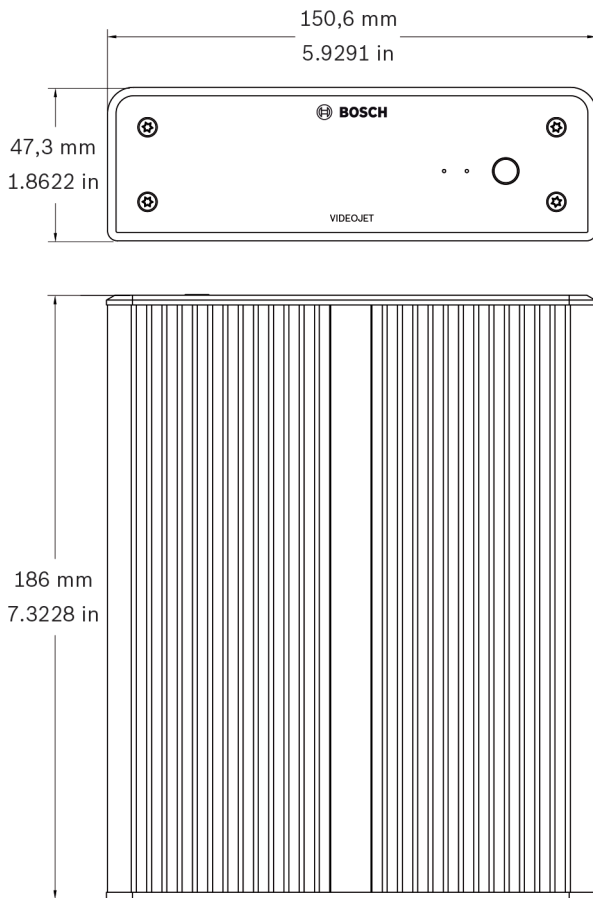
Technical specifications

Electrical / PSU

Power supply	Wide-range, external, included in the box
Input voltage	100 to 240 VAC 1.2 A 50/60 Hz Class I
Output	19 VDC 3.16 A

Electrical / System

Input	19 VDC 3.16 A

Video

Video outputs	2 simultaneously
• connector	1x HDMI 2.0a 1x DisplayPort 1.2 (via USB-C)
Standards	H.265 / HEVC (ISO/IEC 23008-2) H.264 (ISO/IEC 14496-10) MPEG-4

Video

Data rates	
• MP	up to 32 Mbps
• 4K UHD	up to 32 Mbps
• HD	up to 20 Mbps
• SD	up to 6 Mbps per stream
GOP structure	I, IP, IBBP
Monitor resolutions	1920 x 1280 (HD) at 60 Hz 3840 x 2160 (UHD) at 30 Hz

Audio

G.711	
• Frequency range	300 Hz to 3.4 kHz
• Data rate	80 kbps at 8 kHz sampling rate
L16 (reception only)	
• Frequency range	300 Hz to 6.4 kHz
• Data rate	640 kbps at 16 kHz sampling rate
AAC-LC	
• Data rate	48 kbps at 16 kHz sampling rate 80 kbps at 16 kHz sampling rate
Signal-to-noise ratio	> 50 dB

Network

Ethernet	10/100/1000 Base-T, auto-sensing, half/full duplex, RJ45
Protocols	IPv4, UDP, TCP, HTTP, HTTPS, RTP, RTSP, IGMP V2/V3, ICMP, ARP, DHCP, digest authentication
Encryption	TLS (v1.0, v1.1, v1.2), AES (128 bit, 256 bit)

Control

Software update	remotely programmable
Configuration	Configuration Manager
Operation	Bosch Video Management System, Video Client

Mechanical

Dimensions w/o stands (H x W x D)	47.3 x 150.6 x 186 mm (1.862 x 5.929 x 7.323 in)
Weight	Approx. 1.7 kg (3.7 lb)
VESA mount	100 x 100 mm (3.937 x 3.937 in)

Environmental	
Operating temperature	0 °C to +50 °C (+32 °F to +122 °F) ambient temperature
Relative humidity	0 to 90% atmospheric humidity, non-condensing
Thermal value	Approx. 51 BTU/h, 205 BTU/h max

Ordering information

VJD-7513 High-performance H.265 UHD decoder
High-performance video decoder. H.265/H.264 up to 4K UHD and MP; MPEG-4; audio; up to 60fps per stream; HDMI and DisplayPort monitor outputs.
Order number **VJD-7513**

Accessories

UML-274-90 27 inch FHD LED monitor
High-performance full HD (1080p) 27-inch LED monitor.
Order number **UML-274-90**

UML-324-90 32 inch FHD LED monitor
High-performance full HD (1080p) 32-inch LED monitor.
Order number **UML-324-90**

UML-434-90 43 inch FHD LED monitor
High-performance full HD (1080p) 43-inch LED monitor.
Order number **UML-434-90**

UML-554-90 55 inch 4K LED monitor
High-performance UHD (4K) 55-inch LED monitor.
Order number **UML-554-90**

KBD-UXF Keyboard, USB CCTV-oriented
USB CCTV-oriented keyboard for use with Bosch Video Management System, BIS - Video Engine, or DIVAR IP systems.
Order number **KBD-UXF**