

# VideoJet X20/X40 XF E H.264 Video Encoder

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**BOSCH**

Invented for life



- ▶ High-quality H.264 video over IPv4 and IPv6
- ▶ Bandwidth-friendly adaptive bit rate encoding
- ▶ Transcoding at the edge for advanced remote replay
- ▶ Network-attached RAID storage via iSCSI
- ▶ Local recording on CF card

The VideoJet X20/X40 XF E encoders belong to a family of high-performance, dual- or quad-input CCTV video encoders by Bosch that deliver real-time H.264 compressed video over IPv4 and IPv6 networks. The units provide two independent streams per camera with full frame rate at best quality for different purposes, like one stream for live viewing with lowest delay while the second stream is optimized for requiring only little recording space.

The VideoJet X20/X40 XF E encoders support PAL and NTSC sources and provide bidirectional audio communication in parallel to video. They are built into a housing that can be easily rack- or wall-mounted. These powerful and flexible devices represent the cutting edge of high-performance video-over-IP for CCTV today.

## Functions

### Flexibility

The VideoJet X20/X40 XF E encoders offer unparalleled recording flexibility. Stream video across the network and store it using Network Video Recorders (NVRs). Record locally on CompactFlash, or network-attached RAID iSCSI storage devices. The built-in iSCSI support enables the VideoJet X20/

X40 XF E devices to act as conventional DVRs while streaming high-performance live video across the network.

### Triple streaming

The encoders use Dual Streaming to generate two independent H.264 video streams per channel. This allows viewing and recording at two different quality levels to save disk space and bandwidth. As a third stream for easier third-party integration they provide an independently configured M-JPEG stream. On alarm, they can send an e-mail with JPEG images attached.

### Viewing

View the encoder video on a PC using a Web browser, in the Bosch Video Management System, or integrate it into another video management system. By routing the IP video to a high-performance VIDEOJET decoder device you can present the video with ultimate clarity. Adaptive bit rate encoding enables viewing from remote sites over bandwidth-limited connections and wireless connections to mobile clients. Latest HTML5 technologies provide easy access from Android, Windows Phone and iOS based mobile devices.

**Region of interest (ROI)**

Get every detail even on lower bandwidth or smaller video window by panning, tilting and zooming a region-of-interest cut-out from the full image. ROI is possible on both live viewing and playback of recordings.

**Advanced remote playback**

The latest enhancements by Bosch – Adaptive Bit Rate encoding and transcoding – allow replay of recordings over bandwidth-limited connections with smooth browsing through the footage while not missing any detail. Be it a remote guard searching for a specific evidence or alerted by alarm notification, quick access to the relevant recording is easily achieved, and recorded images are presented in original quality even over weak links.

**Dual recording**

You can record the streams independently on different media. Thus video can be recorded centrally on iSCSI drives managed by VRM Video Recording Manager and redundantly on the local media.

Pre-alarm recording in RAM reduces recording bandwidth on the network, or – if CF card recording is used – extends the effective life of the storage medium.

**Recording profiles**

The encoders feature a highly flexible recording scheduler, providing up to ten programmable recording profiles and allowing individually assigned camera profiles. With these profiles, you can accelerate the frame rate as well as increase the resolution on alarm, saving recording space during non-alarm periods.

**H.264 Main Profile and Baseline Profile encoding**

The VideoJet X20/X40 XF E encoders use H.264 Main Profile and Baseline Profile to encode the video signal. H.264 Main Profile allows encoding with the best encoding and compression efficiency while H.264 Baseline Profile maintains backward compatibility to less-advanced decoders.

**Frame rates and resolution**

The VideoJet X20/X40 XF E encoders provide dedicated hardware for encoding and thus are not limited in frame rate and resolution settings, nor in Dual Streaming.

**Access security**

The devices offer various security levels for accessing the network, the unit, and the data channels. As well as password protection with three levels, they support 802.1x authentication using a RADIUS server for identification. You can secure Web browser access by HTTPS using a SSL certificate that is stored in the unit.

Also the communication channels—video, audio, or serial I/O—are then AES encrypted.

**Intelligence**

The VideoJet X20/X40 XF E encoders come with built-in MOTION+ video motion detection. This motion detection algorithm is based on pixel change and includes object size filtering capabilities and sensitivity settings.

**Camera control**

Configure and control your camera or dome using one of the various pre-defined control protocols. The VideoJet X20/X40 XF E encoders also provide a serial interface.

**Easy upgrade**

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

**ONVIF conformance**

Conformance to ONVIF 1.02 and ONVIF Profile S provides interoperability between network video products regardless of manufacturer. In addition, the firmware of the device supports all applicable features of the ONVIF 2.2 specification.

ONVIF conformant devices are able to exchange live video, audio, metadata, and control information and ensure that they are automatically discovered and connected to network applications such as video management systems.

**Certifications and approvals****Safety**

Region	Number
	IEC 60950-1

**System**

Region	Number
	IEC 62676-2
	EN 50132-5-2

**Electromagnetic compatibility**

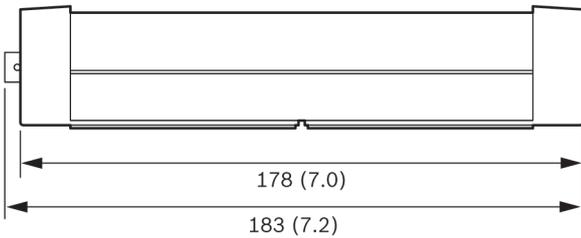
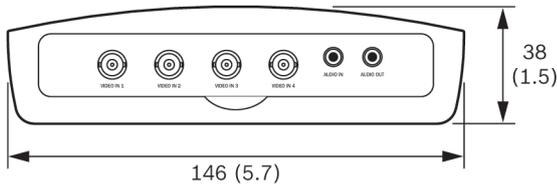
Region	Number
EU	EN 55022 ITE
	EN 55024 ITE
	EN 61000-3-2
	EN 61000-3-3
	EN 50130-4 Alarm systems
	EN 50121-4 Railway
AUS/NZ	AS/NZS 3548 Class B
US	FCC 47 CFR Part 15 Subpart B Class B

**Approvals**

Region	Certification	
Europe	CE	VideoJet XF
USA	UL	Bosch UL online certifications directory (link)

**Installation/configuration notes**

**Dimensions**



Dimensions in mm (in)

**VideoJet X20 XF E**

**Front connectors and indicators**

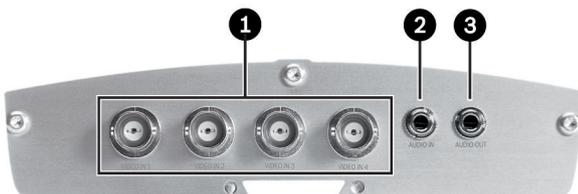


VideoJet X20 XF E front view

- 1 VIDEO IN 1 to VIDEO IN 2
- 2 AUDIO IN
- 3 AUDIO OUT

**VideoJet X40 XF E**

**Front connectors and indicators**

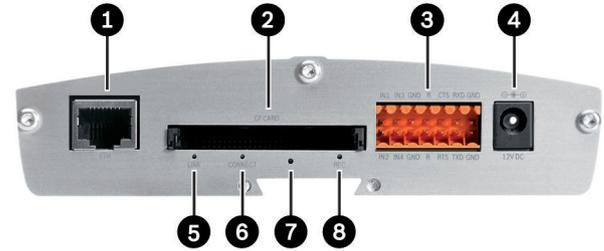


VideoJet X40 XF E front view

- 1 VIDEO IN 1 to VIDEO IN 4
- 2 AUDIO IN
- 3 AUDIO OUT

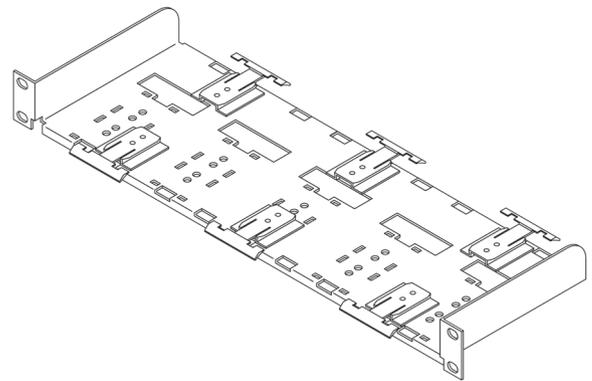
**VideoJet X20/X40 XF E**

**Rear connectors and indicators**



- 1 10/100 Base-T Fast Ethernet
- 2 CF CARD slot
- 3 Alarm in, relay out, COM (RS-232/422/485)
- 4 Power 12 VDC
- 5 LED LINK
- 6 LED CONNECT
- 7 Factory reset button
- 8 LED REC

**Rack Mount Kit XF (optional)**



**Parts included**

Quantity	Component
1	VideoJet X20 XF E encoder with 2 video inputs, or VideoJet X40 XF E encoder with 4 video inputs
1	Quick Installation Guide
1	Safety Hints document
1	Power supply unit with 3 primary adapters (EU, US, UK)
1	Set of spring clamp contact connectors, wall mount and desktop accessories

## Technical specifications

Input/output	
Video	X20: 2 x input
	X40: 4 x input
• connector	BNC
• impedance	75 ohm, switchable
• signal	Analog composite, 0.7 to 1.2 Vpp, NTSC or PAL
Audio	2 x mono line in, 1 x mono line out
• connector	2 x 3.5 mm stereo jack
• signal line in	9 kohm typical, 5.5 Vpp max
• signal line out	3.0 Vpp at 10 kohm / 1.7 Vpp at 16 ohm typical
Alarm	4 x input
• connector	Clamp (non-isolated closing contact)
• activation resistance	10 ohm max
Relay	1 x output
• connector	Clamp
• signal	30 Vpp (SELV), 200 mA
COM port	Clamp, RS-232/422/485
Video	
Standards	H.264 Main Profile, H.264 Baseline Profile (ISO/IEC 14496-10)
Data rates	9.6 kbps to 6 Mbps per channel
Resolution	Horizontal x vertical PAL/NTSC
• 4CIF/D1	704 x 576/480 (25/30 ips)
• CIF	352 x 288/240 (25/30 ips)
GOP structure	I, IP, IPBB, IBRRBP
Overall IP delay	120 ms
Frame rate	1 to 25/30 (PAL/NTSC)
Audio	
AAC	
• Profile	AAC-LC
• Frequency rate	300 Hz to 6.4 kHz
• Data rate	48/80 kbps at 16 kHz sampling rate
G.711	

Audio	
• Frequency rate	300 Hz to 3.4 kHz
• Data rate	80 kbps at 8 kHz sampling rate
L16	
• Frequency rate	300 Hz to 6.4 kHz
• Data rate	640 kbps at 16 kHz sampling rate
Signal-to-noise ratio	> 50 dB
Network	
Ethernet	10/100 Base-T, auto-sensing, half/full duplex, RJ45
Protocols	IPv4, IPv6, UDP, TCP, HTTP, HTTPS, RTP/RTCP, IGMP V2/V3, ICMP, ICMPv6, RTSP, FTP, Telnet, ARP, DHCP, APIPA (Auto-IP, link local address), NTP (SNTP), SNMP (V1, MIB-II), 802.1x, DNS, DNSv6, DDNS (DynDNS.org, selfHOST.de, no-ip.com), SMTP, iSCSI, UPnP (SSDP), DiffServ (QoS), LLDP, SOAP, Dropbox, CHAP, digest authentication
Encryption	TLS 1.0, SSL, DES, 3DES, AES
Control	
Software update	Flash ROM, remote programmable
Configuration	Configuration Manager or web browser
Camera control	Via serial interface; supported* protocols and devices:
• Bosch	AUTODOME, HSPT, MIC1-300 IP, TC8x00
• Canon	VCC1, VC-C4R
• CBC	SMD 12P/12P/20P
• JVC	TK-C676
• Panasonic	WV-CS850
• Pelco	Spectra D/P
• Sensomatic	SpeedDome Ultra
• Sony	EVI D30/31/D100
• Ultrak	KD6
• VT	VPT4x
* Basic functions only, no claim for full functionality valid. Bosch may not be made responsible if functions are not implemented or not working under all circumstances.	

Storage medium	
CompactFlash	1 x CF slot for optional standard Type I/II CompactFlash memory card, 2 TB
Electrical	
Power supply	Via external unit
Input voltage	12 VDC
Current consumption	0.75 A
Power consumption	Approx. 9 W
Mechanical	
Dimensions (H x W x D)	38 x 146 x 183 mm (1.5 x 5.7 x 7.2 in)
Weight	Approx. 0.6 kg (1.3 lb)
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	31 BTU/h max, fully equipped

## Ordering information

### VideoJet X20 XF E

High-performance video encoder. H.264 triple-streaming; iSCSI recording; CF card slot; audio; Motion+; ROI; 2 video inputs  
Order number **VJT-X20XF-E**

### VideoJet X40 XF E

High-performance video encoder. H.264 triple-streaming; iSCSI recording; CF card slot; audio; Motion+; ROI; 4 video inputs  
Order number **VJT-X40XF-E**

## Accessories

### Rack Mount Kit XF

Rack mount kit for stand-alone encoders and decoders  
Order number **VIP-VJTXF-RMK**

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