



# VideoJet X10/X20/X40 Video Encoder



- ▶ **Ruggedized for extended environmental conditions**
- ▶ **High-quality MPEG-4 video over IP**
- ▶ **Units with one, two, or four video inputs**
- ▶ **Built-in Intelligence-at-the-Edge**
- ▶ **Network-attached RAID5 storage via iSCSI**

The Bosch VideoJet X encoders belong to a family of industrial, high-performance, single, dual, or quad input CCTV video encoders. They are built into a rugged housing and constructed to withstand extreme environmental conditions. The VideoJet X encoders may be used at extreme temperatures, operating from -30 °C to +60 °C (-22 °F to +140 °F). These powerful and flexible devices represent the cutting edge of high performance video over IP for CCTV today.

## Functions

### Rugged environments

VideoJet X encoders are ideal for outdoor applications such as perimeter, border and fence control, as well as for industrial applications where they are tolerant of harsh environments.

When used at remote locations you benefit from their wide 10 to 30 VDC power input range, so that they can be battery or solar powered. You also benefit from their SFP slot that allows a direct connection to a fiber interface module without the need for external fiber hardware.

Their industrial-grade vibration resistance makes these encoders extremely suitable for use in mobile applications such as trains, busses or other vehicles.

### Viewing

View the VideoJet X encoder video on a PC using a web browser, in VIDOS, in the Bosch Video Management System or integrate it into another video management system. By routing the IP video to a high performance VIP XD video decoder or a VIDOS monitor wall, you can present the video with ultimate clarity.

### Dual streaming

The VideoJet X encoders use dual streaming to generate two independent IP video streams per channel. This allows viewing and recording at two different quality levels to save disk space and bandwidth. On alarm, they can send an e-mail with JPEG images attached.

### Flexibility

VideoJet X encoders offer unparalleled recording flexibility. Stream video across the network and store it using Network Video Recorders (NVRs). Record locally on internal RAM, CompactFlash or use an optional automotive-grade internal hard drive. Network-attached RAID5 iSCSI storage devices can also be used. The built-in iSCSI support enables the VideoJet X encoders to act as conventional DVRs while streaming high performance live video across the network. Additional USB interfaces allow future connectivity via WAN or Wireless LAN networks to cover applications that will be used at the edge.

**Recording profiles**

The encoders feature a highly flexible recording scheduler, providing up to 10 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.

**Frame rates and resolution**

When one or two inputs are used, the encoders deliver MPEG-4 video over IP at a full frame rate of 25 (PAL) or 30 (NTSC) images per second with up to 4CIF resolution on every channel. If four inputs are used the maximum frame rate is 12.5/15 images per second at 4CIF resolution.

The maximum frame rates listed in the table below depend on the resolution, picture content and movement, and the number of inputs used.

	4 inputs	2 inputs	1 input
4CIF	12.5/15 ips	25/30 ips	25/30 ips
2/3 D1	25/30 ips	25/30 ips	25/30 ips
2CIF	25/30 ips	25/30 ips	25/30 ips

*ips = frame rate in images per second*

**Reliability**

Designed for reliability, the VideoJet X encoders feature a wide range power supply, dual-redundant Ethernet network ports, a third SFP network slot with switching capability between the network ports, dual USB ports and fault-tolerant mass storage via iSCSI.

**Access security**

The VideoJet X encoders 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. Web browser access can be secured by HTTPS using a SSL certificate that is stored in the unit.

**Increased intelligence**

With built-in video content analysis, VideoJet X encoders reinforce the Intelligence-at-the-Edge concept where edge devices become increasingly intelligence. The VideoJet X comes with built-in MOTION+ video motion detection. This motion detection algorithm is based on pixel change and includes object size filtering capabilities and sophisticated tamper detection capabilities.

Bosch offers more advanced video content analysis (VCA) applications with its Intelligent Video Motion Detection (IVMD). A licensable option, it bases the IVMD algorithm on digital imaging technology that uses multi-level image analysis of pixel, texture and motion (trajectory) changes.

**Easy upgrade**

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

**Certifications and Approvals**

**Safety**

Region	Number
EU	IEC60950
USA	UL60950

**Electromagnetic compatibility**

Region	Number
EU	EN55103-1 Video and audio equipment EN55103-2 Video and audio equipment EN50130-4 Alarm systems EN55022 ITE EN55024 ITE EN50121-4 Railway applications

**Environment**

Region	Number
EU	EN61000-3-2 EN61000-3-3 EN60068-2-6 Fc EN60068-2-30 Db EN60068-2-1 Ab EN60068-2-2 Bb EN60068-2-14 Na

**Installation/Configuration Notes**

VideoJet X encoders have an integrated heat pipe which needs a specific mounting direction to be fully functional. Mount VideoJet X encoders in any direction except with the front (BNC side) pointing upwards.

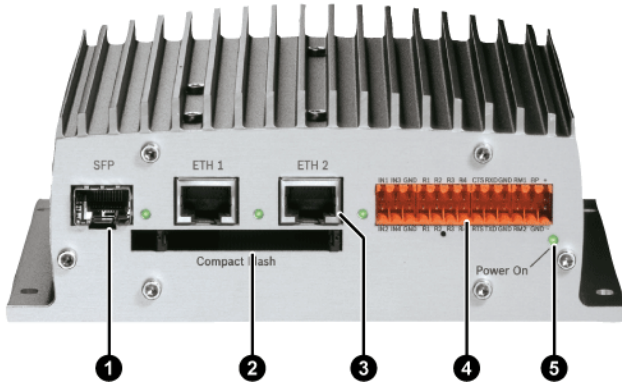
**Front connectors and indicators**



VideoJet X40 - front

- 1 USB 1 and 2
- 2 Video input 1 (2, 3, and 4 where applicable)
- 3 2-channel audio input (1 channel for X10)
- 4 2-channel audio output (1 channel for X10)
- 5 LED HDD (only operates on HDD versions)
- 6 LED connect

### Back connectors and indicators



VideoJet X series - back

- 1 SFP GBIC slot
- 2 Compact flash slot
- 3 Ethernet 1 and 2
- 4 Alarm input, relay output, serial interface and power input connector block
- 5 LED Power on

### Parts Included

#### Quantity Component

- |   |  |
|---|--|
| 1 | VideoJet X encoder                     |
| 1 | Quick installation guide               |
| 1 | CD Rom with software and documentation |
| 1 | Drilling template                      |
| 1 | Set of spring clamp contact connectors |

An optional extended range power supply can be ordered separately with power cord versions for the EU/US, UK and AUS regions.

### Technical Specifications

#### Electrical

Power supply	Stand-alone, exclusive, or external battery
Input voltage	10 to 30 VDC
Power consumption	X10: approx. 16 VA, fully equipped X20/X40: approx. 22 VA, fully equipped

#### Video

Video compression standards	MPEG-4, M-JPEG, JPEG
Video data rate	9.6 kbps to 6 Mbps per channel
Video resolution and frame rate (PAL/NTSC)	4CIF (704 x 576/480), 25/30 ips 4CIF (704 x 576/480), 12.5/15 ips (4 inputs used) 2CIF (704 x 288/240), 25/30 ips 2/3 D1 (464 x 576/480), 25/30 ips 1/2 D1 (352 x 576/480), 25/30 ips CIF (352 x 288/240), 25/30 ips QCIF (176 x 144/120), 25/30 ips
GOP structure	I, IP
Overall delay	120 ms
Video in	VideoJet X10: 1x BNC connector VideoJet X20: 2x BNC connectors VideoJet X40: 4x BNC connectors Analog composite (NTSC or PAL) 75 Ohm switchable, 0.7 to 1.2 Vpp

#### Audio

Audio standard	G.711; 300 Hz to 3.4 kHz
Audio data rate	80 kbps at 8 kHz Sampling Rate
Line in	Dual channel via 3.5 mm stereo jack, 9 kOhm typical, 5.5 Vpp max. (mono only for X10)
Line out	Mono line output on 3.5 mm stereo jack, 3.0Vpp at 10 kOhm / 1.7 Vpp at 16 Ohm typical

#### Network

Ethernet	Dual port 10/100 Base-T, auto-sensing, half/full duplex, RJ45
Protocols	RTP, Telnet, UDP, TCP, IP, HTTP, HTTPS, IGMP V2/V3, ICMP, ARP, SNMP, SNMP (V1/V2c/V3 MIB-II)
Encryption	TLS 1.0, SSL, AES (optional)

#### Control

Software update	Flash ROM, remote programmable
Configuration	Configuration Manager or web browser
RAM recording	32 MB total, 8 MB per channel

#### Connections

SFP	1x1 Gbps SFP slot for optional standard SFP GBIC module
CompactFlash	1x CF slot for optional standard Type I/II CompactFlash memory card
USB ports	USB 2.0 high-speed ports, 2.5 W max. feed each (future use)
Alarm in	4x (non-isolated closure contact type), max. activation resistance 10 Ohm, 6 spring clamp contacts
Relay out	4x, 30 Vpp, 2 A, 8 spring clamp contacts
COM port	1x RS232/422/485, 6 spring clamp contacts

**Mechanical**

Dimensions (H x L x D) 61 x 178 x 160 mm (2.4 x 7.01 x 6.3 in)

Weight Approx. 1.5 kg (3.2 lb) with HDD

**Environmental**

Operating temperature -30 °C to +60 °C (-22 °F to +140 °F)  
ambient temperature

Humidity 0 to 95% atmospheric humidity,  
non-condensing

Heat value 82 BTU/h max.

**Ordering Information****VJT-X10S**

VideoJet X10 with 1 video input

**VJT-X10S****VJT-X10S-H004**

VideoJet X10 with 1 video input and a 40 GB  
hard disk

**VJT-X10S-H004****VJT-X20S**

VideoJet X20 with 2 video inputs

**VJT-X20S****VJT-X20S-H004**

VideoJet X20 with 2 video inputs and a 40 GB  
hard disk

**VJT-X20S-H004****VJT-X40S**

VideoJet X40 with 4 video inputs

**VJT-X40S****VJT-X40S-H004**

VideoJet X40 with 4 video inputs and a 40 GB  
hard disk

**VJT-X40S-H004****Accessories****VJT-XACC-PS**

VJX10/20/40 wide-range extended-tempera-  
ture power supply

**VJT-XACC-PS****VJT-XACC-PSUK**

VJX10/20/40 wide-range extended-tempera-  
ture power supply for UK

**VJT-XACC-PSUK****VJT-XACC-PSAU**

VJX10/20/40 wide-range extended-tempera-  
ture power supply for AUS

**VJT-XACC-PSAU****DVA-12T-04050RA**

iSCSI RAID5, 12 bay 1.5 TByte net capacity (4  
hard drives installed)

**DVA-12T-04050RA****DVA-12T-12050RA**

iSCSI RAID5, 12 bay, 5.5 TByte net capacity  
(12 hard drives installed)

**DVA-12T-12050RA****Ordering Information****Software Options****VJT-X10-FS1**

VideoJet X10 IVMD 1.0 VCA Software License

**VJT-X10-FS1****VJT-X20-FS1**

VideoJet X20 IVMD 1.0 VCA Software License,  
valid for 2 channels

**VJT-X20-FS1****VJT-X40-FS1**

VideoJet X40 IVMD 1.0 VCA Software License,  
valid for 4 channels

**VJT-X40-FS1****VJT-X10-FS2**

VideoJet X10 IVMD 2.0 VCA License

**VJT-X10-FS2****VJT-X20-FS2**

VideoJet X20 IVMD 2.0 VCA License, valid for  
2 channels

**VJT-X20-FS2****VJT-X40-FS2**

VideoJet X40 IVMD 2.0 VCA License, valid for  
4 channels

**VJT-X40-FS2**

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