

**BOSCH**
Invented for life

VIP X1600 XF Modular High-performance Video Encoder / Decoder



- ▶ Up to 16 video input/output channels
- ▶ Modular and expandable with hot-swappable video modules
- ▶ Direct or network-attached iSCSI RAID 5
- ▶ Dual Streaming for high storage efficiency
- ▶ Up to 30 fps at 4CIF/D1
- ▶ Intelligent video motion detection and camera tampering detection on encoder modules
- ▶ Redundant power supply
- ▶ Three redundant gigabit Ethernet ports plus a SFP slot for direct Fiber connectivity

The Bosch VIP X1600 XF is a modular, high-performance CCTV video encoder and decoder system. Each VIP X1600 XF is a 4x4 unit that accommodates up to four hot-swappable modules, allowing modules to be added or exchanged at any time without interrupting transmission to the existing channels. Encoder and decoder modules, each with four analog audio/video inputs or video outputs, can be mixed and matched within the base unit.

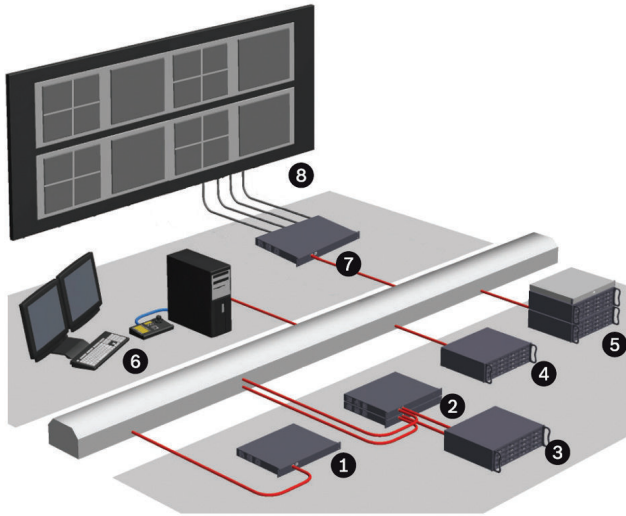
The VIP X1600 XF base unit provides two 1 Gbps Ethernet ports on the front and an additional 1 Gbps Ethernet port on the rear. This provides a greater choice of network connectivity and allows for easier inside-rack cabling like, for example, direct connection to an iSCSI storage array. The base unit also features a 1 Gbps small form factor pluggable (SFP) optical transceiver slot on the front to enable direct fiber connection to a remote Storage Area Network.

The VIP X1600 encoder modules deliver real-time MPEG-4 video over IP. View it on a PC using Bosch's comprehensive video management system, with or without Bosch's IntuiKey keyboard. Alternatively, use a Web browser. These high-performance, multi-channel devices with iSCSI Recording at the Edge, offer top-of-the-line Video over IP performance for CCTV today.

VIP X1600 XFMD decoder module is capable of decoding up to 4 MPEG-2 video streams without audio or up to 10 MPEG-4 video streams at a maximum resolution of 4CIF at 25/30 ips. The decoder can also be set up to display 4 full screen video signals or 2 full screen and 2 quad views. This allows the 10 MPEG-4 live video streams from a single decoder to be displayed on a compact monitor wall. If 4 decoder modules are used, the system can serve a monitor wall of up to 16 analog monitors displaying the live video from up to 40 cameras.

The Bosch Video SDK provides the means to integrate the VIP X1600 XF with other video management systems.

System Overview



- 1 VIP X1600 with 16 analog cameras, network-attached iSCSI storage, or local RAM recording or streaming only
- 2 VIP X1600 with 2x 16 analog cameras
- 3 Direct-attached iSCSI RAID 5
- 4 Network-attached iSCSI RAID 5 unit
- 5 NVR Server with SCSI connection to very large RAID 5 unit > 12 TB
- 6 Management station with IntuiKey
- 7 Decoders
- 8 Monitors

Functions

Storage

The VIP X1600 supports external storage, either directly attached to the unit (Recording at the Edge), or across an IP network to a centralized network video recorder (NVR). For Recording at the Edge, attach an iSCSI RAID directly to the VIP X1600, making the system's recording performance wholly independent from the network's performance. The iSCSI RAID storage enables the VIP X1600 to act as a conventional DVR and stream high-performance live video across the network. Alternatively, the VIP X1600 can record centrally by sending IP video to a VIDOS-NVR system, Bosch's IP NVR software and hardware suite. VIDOS-NVR offers Automatic Network Replenishment (ANR), the unique and patent-pending ability to provide uninterrupted NVR recordings, even during temporary network outages.

The VIP X1600 can share an iSCSI RAID device with other units (such as VIP X1 and VIP X2, or additional VIP X1600 encoders), as well as with Dinion IP cameras. Each iSCSI RAID can be divided into 31 divisions, called LUNs. Each LUN can record one or more cameras, depending on the VRM model. Each iSCSI RAID can record 31 Dinion IP

cameras, 31 VIP X1 cameras, 62 VIP X2 cameras or 124 VIP X1600 cameras. Each iSCSI RAID can manage up to 200 Mbps of incoming video.

Intelligence

Moving intelligence to the edge, the VIP X1600 encoders incorporate Bosch Intelligent Video Analytics, including video loss detection and tamper detection (e.g., uniform picture caused by masking, hooding, and defocusing). It also detects diverted camera scenarios – tampering caused by redirecting the entire camera. Designed for reliability, the VIP X1600 features hot-swappable video modules, dual redundant power supply inputs, encoders redundant network ports, and fault-tolerant mass storage via iSCSI RAID 5.

High performance

Transmit IP video to a high-performance VIP X1600 XFMD video decoder and present it with ultimate clarity on an analog CCTV or – with VIP XD – on a large, flat-screen VGA monitor. A VIDOS monitor wall can provide, literally, a wall-full of high quality, real-time video. The encoders use dual streaming to generate two independent IP video streams. This allows viewing and recording at two different quality levels, saving disk space and bandwidth. The VIP X1600 is also used with VASA – Bosch's hybrid IP integration software – offering Allegiant IntuiKey users the ability to view an Allegiant camera or one from an IP-based system.

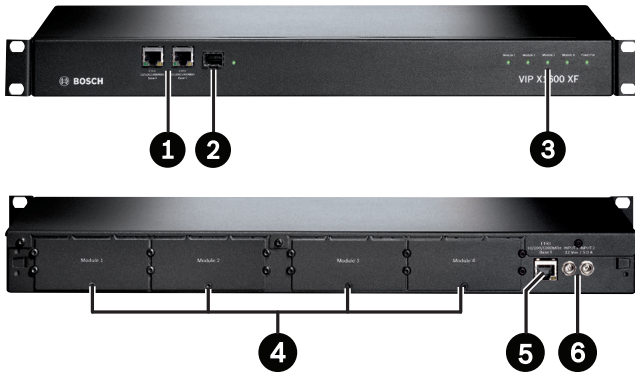
Certifications and Approvals

Safety	EN 60950 (CE); UL 1950; J 60950; AS/NZS 3548; EN 55103-1, -2
Immunity	EN 50130-4 (CE)
Emission	EN 50022 class B (CE); EN 55024; FCC 47 CFR Ch.1 Part 15; EN 61000-3-2 (CE); EN 61000-3-3 (CE)

Installation/Configuration Notes

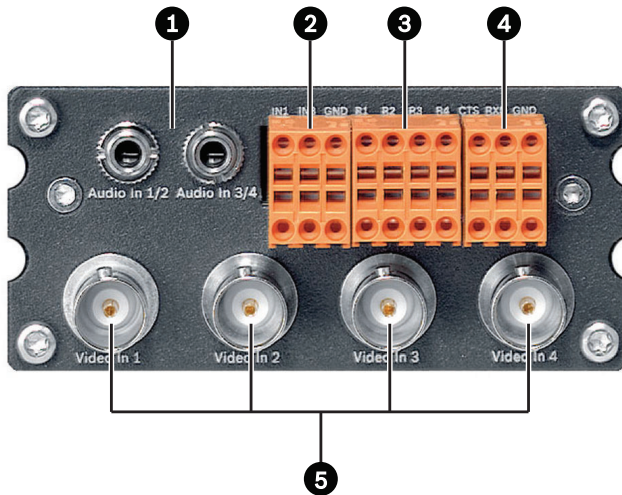
	4 CH per module	2 CH per module
Camera inputs	4	2
4CIF/D1 frame rate	15 ips*	30 ips*
2/3 D1 frame rate	30 ips*	30 ips*
2CIF frame rate	30 ips*	30 ips*
Dual streaming	Yes	Yes

Frame rate combinations with two and four channel modules
** Depending on picture content and movement*



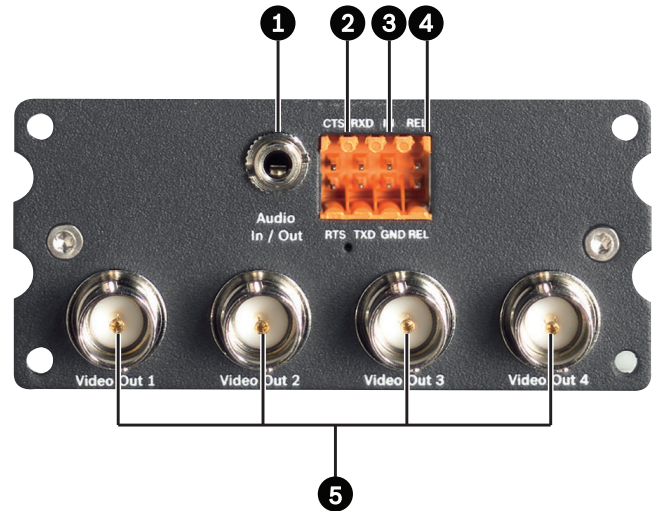
Front and rear view Base system

- 1 2x redundant 10/100/1000 Base-T gigabit Ethernet
- 2 1x SFP slot for additional gigabit Ethernet interface e.g. via Fiber
- 3 5x status LEDs
- 4 4 modules, each with 4x video-audio
- 5 1x redundant 10/100/1000 Base-T gigabit Ethernet
- 6 Redundant power supply inputs



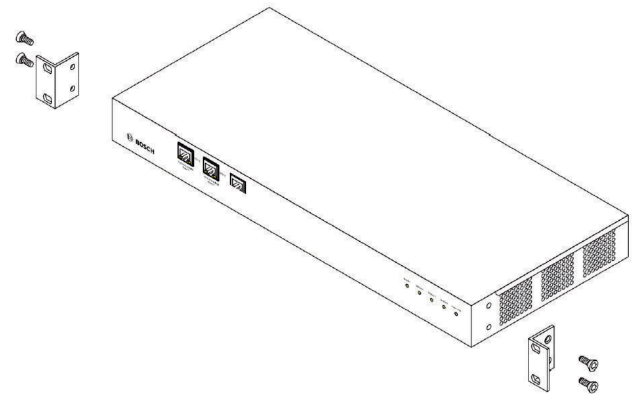
Encoder module close-up

- 1 Line-level stereo audio jack per 2 channels (video-audio module only)
- 2 4x alarm in per module
- 3 4x relay out per module
- 4 COM port (RS-232/485) per module
- 5 4x video input

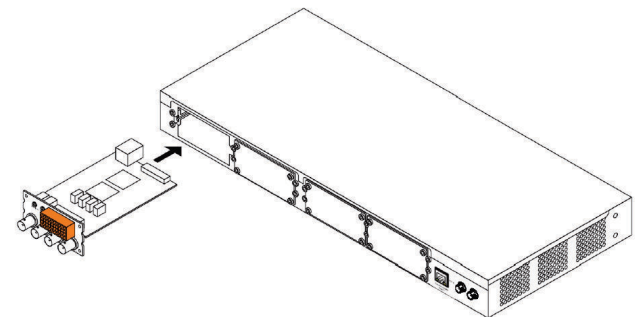


Decoder module close-up

- 1 Line-level stereo jack for audio in/out
- 2 COM port (RS-232/485) per module
- 3 1x alarm in per module
- 4 1x relay out per module
- 5 4x video monitor output



VIP X1600 rack mounting accessories



VIP X1600 module assembly

Parts Included

VIP X1600 XFB Base System

Quantity	Component
1	VIP-X1600-XFB Base System
1	Mounting kit for 19" rack
1	Quick Installation Guide
1	CD-ROM with software and documentation

Modules and power supply are not included, order separately.

VIP X1600 modules

Quantity	Component
1	VIP X1600M4S 4 Channel Video Module, or VIP X1600M4SA 4 Channel Audio/Video Module, or VIP-X1600-XFMD 4 Channel Decoder Module
1	Quick Installation Guide

VIP X1600 standalone power supply

Quantity	Component
1	VIP X1600PS Standalone Power Supply (EU/US, UK and AUS versions available)
1	Power cord (EU/US one each)

Technical Specifications**Base System****Power supply**

Voltage	12 VDC, redundant (dual inputs)
Power consumption	Approx. 50 VA, fully equipped

Network connections

Ethernet	Triple port (2 front, 1 rear) 10/100/1000 Base-T, auto sensing, half/full duplex, RJ45
SFP	1 Gbps SFP (small form-factor, pluggable) slot at front

Mechanical

Dimensions (HxWxD)	44 x 440 x 210 mm (without brackets) (17.3 x 8.3 x 1.7 in)
Color	Charcoal
Weight	Approx. 4.0 kg (8.4 lb) with 4 modules

Environmental

Operating temperature	0 °C to +50 °C (+32 °F to +122 °F)
Storage temperature	0 °C to +50 °C (+32 °F to +122 °F)
Relative humidity	0% to 95%, non-condensing
Heat output	170 BTU/h

Encoder Modules**Input/output**

Video inputs	4x
connector	BNC, 75 ohm, switchable 0.7/1.2 Vpp
signal	Analog composite, NTSC or PAL
Audio line in	4x
connector	2 x 3.5 mm stereo jack
signal	9 kohm (typical), 5.5 Vpp (max)
Alarm inputs	4x
connector	Clamp, not isolated, closure contact
activation resistance	10 ohm (max)
Control outputs	4x
connector	Clamp, 30 Vpp, 2 A
Serial	RS-232/422/485, clamp

Video

Standards	MPEG-4; M-JPEG
Data rates	9.6 kbps to 6 Mbps per channel
Resolution	Horizontal x vertical PAL/NTSC
4CIF/D1	704 x 576/480 (12.5/15 ips)
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 IP delay	120 ms
Select. frame rate	1 to 50/60 (PAL/NTSC)
RAM recording	32 MB total, 8 MB per channel

Audio

Standards	G.711; 300 Hz to 3.4 kHz
Data rate	80 kbps at 8 kHz sampling rate
Mono line in	3.5 mm stereo jack; 9 kohm (typical); 5.5 Vpp (max)

Environmental

Operating temperature	0 °C to +50 °C (+32 °F to +122 °F)
Storage temperature	0 °C to +50 °C (+32 °F to +122 °F)
Relative humidity	0% to 95%, non-condensing

Decoder Modules**Input/output**

Video inputs	4x
connector	BNC, 75 ohm, 1.2 Vpp
signal	Analog composite, NTSC or PAL
Audio	1x mono bidirectional
connector	3.5 mm stereo jack
Signal line in	9 kohm, 5.5 Vpp (max)

Input/output

Signal line out	3.0 Vpp at 10 kohm / 1.7 Vpp at 16 ohm typical
Alarm inputs	4x
connector	Clamp, not isolated, closure contact
activation resistance	10 ohm (max)
Control outputs	1x
connector	Clamp, 30 Vpp, 2 A
Serial	RS-232/422/485, clamp

Video

Standards	MPEG-2; MPEG-4
streams	up to 4x MPEG-2; up to 10x MPEG-4
Data rates	up to 6 Mbps per channel
Resolution	Horizontal x vertical PAL/NTSC
4CIF/D1	704 x 576/480 (25/30 ips)
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)
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GOP structure	I, IP
Overall IP delay	120 ms

Audio

Audio standard	G.711; 300 Hz to 3.4 kHz
Audio data rate	80 kbps at 8 kHz sampling rate

Environmental

Operating temperature	0 °C to +50 °C (+32 °F to +122 °F)
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Relative humidity	0% to 95%, non-condensing

Ordering Information

VIP-X1600-XFB VIP X1600 XF Base System	VIP-X1600-XFB
VIPX1600M4S VIP X1600 4-channel video module, serial I/O, 4 alarm in, 4 relays	VIPX1600M4S
VIPX1600M4SA VIP X1600 4-channel video-audio module, se- rial I/O, 4 alarm in, 4 relays, 4 audio in	VIPX1600M4SA
VIP-X1600-XFMD VIP X1600 Decoder Module with 4 BNC out	VIP-X1600-XFMD

Ordering Information**Accessories**

VIP-X1600-PS VIP X1600 stand-alone power supply for EU and USA	VIP-X1600-PS
VIP-X1600-PSUK VIP X1600 stand-alone power supply for UK	VIP-X1600-PSUK
VIP-X1600-PSAU VIP X1600 stand-alone power supply for Aus- tralia	VIP-X1600-PSAU

Software Options

VIP-X1600-FS1 VIPX1600 IVMD 1.0 VCA Software License per module, valid for all 4 channels	VIP-X1600-FS1
VIP-X1600-FS2 VIP X1600 IVMD 2.0 VCA License per module, valid for 4 channels	VIP-X1600-FS2
VIP-X1600-FS3 VIP X1600 IVA 3.0 VCA License Module 4CH	VIP-X1600-FS3

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