



Video Gateways

TVG415

SD JPEG 2000 Gateway

The TVG415 provides a simple and cost-effective solution for transport of SD-SDI signals over IP networks and ASI links.

Use of JPEG 2000 compression allows efficient compression of SDTV signals with visually lossless quality, and minimal latency.

The TVG415 is part of the NeVion Video Gateway suite; a line of compact, powerful and cost-effective products designed for real-time Contribution and Distribution of broadcast quality video over IP networks.

By taking advantage of the inherent flexibility of IP, broadcasters are offered an efficient, affordable and scalable solution for professional quality high definition video contribution.

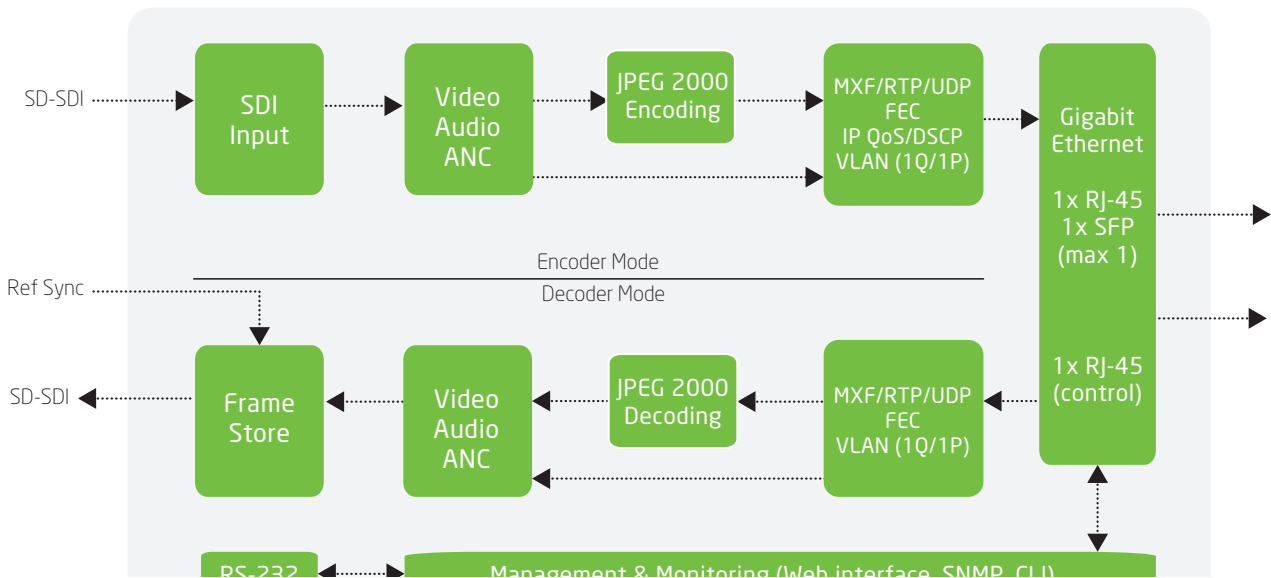
The TVG415 provides JPEG 2000 compression of SD-SDI signals allowing transmission of over GigE/Fast Ethernet links as well as over DVB ASI links.

Applications

- Professional broadcast contribution
- Live sports and event contribution
- Studio-to-studio media exchange
- Managed video services over IP

Key features

- Visually lossless JPEG 2000 4:2:2 10-bit compression
- Single-channel SD JPEG 2000 encoding or decoding
- Very low end-to-end latency
- MXF/IP encapsulation ensures perfect synchronization of video, audio channels and ancillary data.
- FEC for video over IP with no extra latency
- IP unicast or multicast
- Built-in VLAN and IP QoS support
- Integrated decoder frame store and reference sync
- Highly efficient error correction and concealment
- User-friendly web GUI for monitoring and control



JPEG 2000 compression technology

Each frame/field is encoded with JPEG 2000 Part 1 image compression, with native 10-bit resolution and 4:2:2 YCbCr sampling. JPEG 2000 typically provides visually lossless video quality at a compression ratio of 10:1.

Encoding or Decoding

The TVG415 has 2 operational modes; encoder or decoder. It is possible to switch the mode from the web user interface. Switching mode requires a quick restart.

Transparent audio handling

The TVG415 supports transmission of up to 16 mono channels of embedded audio for SD-SDI. Handling of embedded audio, whether it's linear PCM or pre-compressed audio, is fully transparent.

MXF/IP encapsulation

MXF/IP encapsulation ensure perfect synchronization of video, multi-channel audio and associated ancillary data.

Robust transmission over IP

The TVG415 includes a number of features to ensure robust operation and graceful degradation in presence of IP transport impairments; buffering for IP jitter compensation, packet reordering, FEC and highly efficient error concealment.

Forward Error Correction (FEC)

FEC provides protection against intermittent and short burst packet loss, and does not require any additional latency.

ASI transport interface

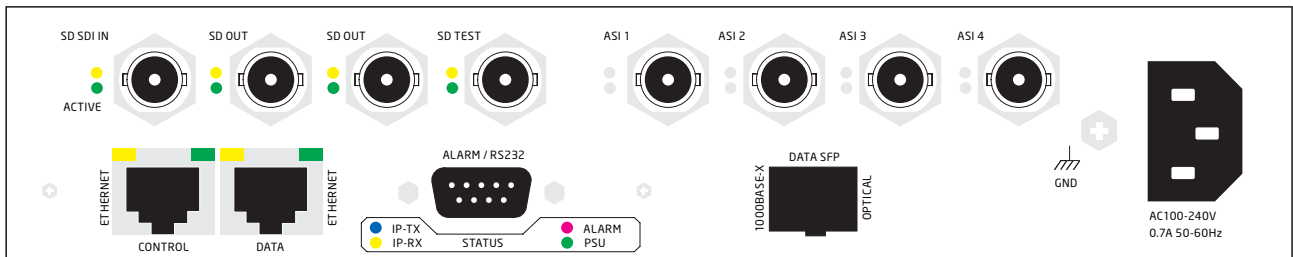
The TVG415 can be equipped with an optional ASI input/output interface card which allows transmission of SD-SDI signals over ASI links.

Integrated refsnc

The TVG415 decoder has a built-in refsnc input for locking the output SDI signal to an external reference sync signal.

Test image transmission

An encoder can be configured to transmit an internally generated test image at a configurable constant bitrate to allow testing of network links prior to a live event.



Video Interfaces

| | |
|------------------|---------------------------|
| Input: | SD-SDI (SMPTE 259) |
| Output: | SD-SDI (SMPTE 259) |
| | 2 main and 1 test outputs |
| Connector: | Female BNC |
| Reference Input: | SD-SDI (SMPTE 259) |

Network Interfaces

| | |
|------------|-----------------------------------|
| Type: | 100/1000Base-T Ethernet |
| Protocols: | IEEE802.3 Ethernet |
| | RTP, ARP, IPv4, IGMPv2/3, TCP/UDP |
| Connector: | RJ45, SFP Module (Option) |

Transport Stream Interface (option)

| | |
|-------|---------------------|
| Type: | DVB ASI, Female BNC |
|-------|---------------------|

Video Encoding

| | |
|--------------------------|--|
| Video Encoding: | JPEG2000 |
| IP Encapsulation: | MXF over RTP |
| IP Bitrate: | 25 to 250 Mbit/s |
| Forward Error Correction | Forward Error Correction based on SMPTE 2022 FEC |

Video Formats

| | |
|---------------------|-----------|
| SD 625 / 525 lines: | 25i / 29i |
|---------------------|-----------|

Audio and Ancillary data

| | |
|------------------------------|--|
| Audio formats: | Embedded audio (SMPTE 299M-1997) |
| | Uncompressed, 16 channels, 24 bit |
| Data formats: | SD: WST Teletext, Closed Captioning, Video index, VITC, VPS and WSS (coded as video) |
| Audio/video synchronization: | +/- 1 line |

Control and Management

| | |
|-------------------|--|
| Type: | 10/100 Base-T Ethernet |
| Features: | Element control through HTTP/WEB. |
| | XML SNMP traps for integration with NMS. |
| SNMP control: | |
| Protocol: | HTTP, XML, SNMP v2 |
| Connector: | RJ45 |
| Alarm Relay: | 9 pin D-SUB |
| Maintenance Port: | RS232 9 pin D-SUB |

Physical and Power

| | |
|-----------------------|---------------------------------|
| Input Voltage: | 100-240V AC +/- 10% |
| Input Voltage Option: | -48V DC |
| Dimensions: | 1RU, 1/2-width 19" |
| | (WxDxH) 210 x 300 x 44.5mm |
| | Two units in 19" 1RU rack space |
| Installation: | 19" rack mounting kit supplied |

Environmental Conditions

| | |
|------------------------|----------------------------|
| Operating Temperature: | 0°C - +50°C |
| Storage Temperature: | -20°C - +70°C |
| Relative Humidity: | 5% to 95% (non condensing) |

Compliance

| | |
|---------|--|
| CE: | 73/23/EEC (Low voltage equipment) |
| | 89/336/EEC (Electromagnetic compatibility) |
| CSA: | Designed for CSA approval |
| Safety: | IEC60950 and EN60950 |
| EMC: | EN55022, EN55024, EN6100-3-2 |

Product Options

| | |
|--------------------------|---|
| TVG415-SD-SDI-J2K-IP | TVG415 SD JPEG 2000 Gateway |
| TVG415-SD-SDI-J2K-IP-ASI | TVG415 SD JPEG2000 Gateway - IP or ASI output |
| TV-HW-OPT-DC | Single -48V DC PSU |
| TVG415-FEC | Forward Error Correction on IP input/output |
| TVG415-SFP | Optical IP via SFP socket |
| TVG415-TCON | Connect support |

Video Gateways

Nevion Video Gateways are a line of compact, powerful and cost-effective products designed for real-time contribution and distribution of broadcast quality video over IP networks.

By taking advantage of the inherent flexibility of IP networking, the Video Gateways provide broadcasters and service providers with flexible, efficient and scalable solutions for high quality professional video transport. The Video Gateway portfolio includes the market leading Transport Stream Gateway - the TVG425 - and the industry's first combined SD/HD/3G/3D JPEG 2000 contribution solution - the TVG450

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