IN1804 Series
FOUR INPUT 4K/60 SEAMLESS SCALING SWITCHERS

High Performance Video Switching and Processing

- Integrates DisplayPort, HDMI, and audio sources into presentation systems
- DisplayPort, HDMI, and optional DTP2 inputs
- HDMI and optional DTP2 outputs
- Advanced Extron Vector™ 4K scaling engine
- Selectable output rates from 640x480 to 4K/60 4:4:4
- Selectable seamless switching transitions

Extron
IN1804 Series

The Extron IN1804 is a compact four input scaler that supports signal resolutions up to 4K/60 at 4:4:4. It incorporates Extron-patented Vector 4K scaling technology specifically engineered for critical 4K signal processing applications. It features DisplayPort and HDMI inputs with available models that provide Extron DTP2 extension of video, audio, and control signals up to 330 feet (100 meters) over a shielded CATx cable. The IN1804 delivers the convenience of fast and reliable automatic switching, along with advanced capabilities such as audio embedding/de-embedding, seamless transition effects, and logo keying. Designed for professional AV integration, the IN1804 can be controlled and configured using Ethernet, RS-232, USB, and contact closure with tally outputs.

With a maximum data rate of 18 Gbps, the IN1804 Series supports computer and video resolutions up to 4K/60 with full 4:4:4 chroma sampling. The Extron-exclusive Vector 4K scaling engine applies precision 30-bit processing and maintains 4:4:4 chroma sampling to ensure pristine image quality at the output.

IN1804 Series models featuring DTP2 twisted pair connectivity support 4K/60 @ 4:4:4 signal extension up to 330 feet (100 meters) over a shielded CATx cable when paired with DTP2 endpoints. These models are compatible with all DTP products, enabling additional design options within the AV industry’s most comprehensive integration platform.

IN1804 Series products are built to serve the needs of smaller rooms where reliability, ease of use, and superior quality presentations are crucial – these include corporate meeting rooms, lecture rooms in higher education, and government facilities. In addition to pristine video performance, they incorporate logo keying and seamless switching transition effects to enhance the user experience.
The high performance video scaling engine built into the IN1804 allows for uncompromised image quality. Powered by Vector 4K scaling technology, the IN1804 provides powerful processing capabilities, including selectable seamless switching transition effects and logo keying. These capabilities serve the needs of environments where superior quality presentations are crucial.

**Seamless Switching Transitions**

Critical presentations do not tolerate video glitches. To ensure glitch-free, professional quality presentations, several transition effects can be selected when switching between video sources.

Effects include:

- **Cut through black** – Instantly cut the current input to black, then cut to the newly selected input.

- **Fade through black** – Fade the current input to black, then fade to the new input.

- **Seamless cut** – Freeze the current input video frame, then cut to the newly selected input.

- **Seamless fade** – Freeze the current input video frame, then fade to the new input.

**Logo Keying**

A graphic image such as a company or school logo can be uploaded and inserted on the output video signal to enhance branding and to identify the source of valuable video content. Custom images up to 4K resolution are supported and can be used at any point in the presentation.

- Logos can be placed anywhere on the active video.

- Uploaded logos can be inserted above live video using level keying, RGB color keying, or an alpha channel when supported by the graphic file format.

- Logo images in BMP, JPG, PNG, or TIFF graphic file formats are supported.

- 16 logo presets are available to store the logo filename, position, and key settings for quick recall and switching between multiple logo images.
When it comes to delivering unsurpassed image quality, Extron has the proven technology and expertise to do it right. For over 20 years, Extron has been engineering and designing scaling and signal processing solutions, with 24 worldwide patents awarded to date.

Extron Vector 4K is the latest generation of our video scaling engines and is specifically engineered for critical-quality 4K imaging. Innovative applications utilizing 4K content and displays continue to emerge, with end users demanding sharp, detailed, and professionally crafted imagery from their systems. To meet this important criterion, Extron has created a new series of signal processing technologies for upscaling, downscaling, and optimally converting 4K signals or any other source content.

Designing Scaling Technology from the Ground Up

The Vector 4K scaling engine is the result of our extensive R&D operations with in-house engineering expertise in signal processing, image rendering, software engineering, and computing platform integration. With the vast knowledge we’ve acquired over the years through our research into high resolution video and graphics imaging, we’re able to deliver patented image processing technologies that meet our exact specifications for visual performance.

In addition to high performance image processing, Vector 4K incorporates essential integration features that help address frequent AV system design and integration challenges, while simplifying setup and commissioning. Having our own “home-grown” scaling and signal processing technology allows us to respond to specific AV integration needs in a timely manner.

Unparalleled Scaling Quality

The Vector 4K scaling engine incorporates Extron-engineered, multi-tap, bicubic interpolation, which creates a new pixel by averaging adjacent pixels above, below, to the sides, and diagonally of the new pixel. This produces sharp, accurate output, preserving single-pixel detail as content is downscaled or upscaled.

Color Bit Depth

Vector 4K scaling technology processes video at 30 bits per pixel to maximize grayscale and color accuracy. This maintains color fidelity and detail present in native 30-bit source content, while delivering better color accuracy for 24-bit sources.

4:4:4 Chroma Processing

4:2:2 or 4:2:0 chroma subsampling may be acceptable for processing full-motion video, but can produce color smearing, missing lines, jagged lines, and other artifacts with PC-generated content. Vector 4K scaling processes video and computer graphics in the RGB domain with full 4:4:4 color, which is critical for processing fine image details such as single pixel, colored lines and text in computer content.
Integrates DisplayPort, HDMI, and audio sources into presentation systems
IN1804 models provide centralized switching for a wide range of AV sources.

Supports signal resolutions up to 4K/60 with 4:4:4 color

Supports DisplayPort SST - Single Stream Transport data rates up to 21.6 Gbps

Supported HDMI 2.0 specification features include data rates up to 18 Gbps, Deep Color, and HD lossless audio formats

Logo image keying and display
A logo graphic can be positioned and keyed o.5 unit. Full screen images up to 4K resolution can also be displayed to avoid showing blank screens in between presentations.

Auto-switching between inputs
Auto-switching allows for intuitive operation in collaboration spaces. Multiple switching priority modes are available, including last-connected input and user-selectable priority.

Stereo audio embedding and de-embedding
Analog audio signals can be embedded onto the DTP2 and HDMI outputs, and embedded two-channel PCM audio can be extracted to the analog outputs, or multi-channel bitstream formats can be passed to the DTP2 and HDMI outputs.

Selectable seamless switching transitions
Seamless cut/fade, cut through black, and fade through black transition effects are available.

Comprehensive EDID control and management
Use PCS software to control EDID Minder for setting video input EDID, capturing EDID from connected displays, or uploading custom EDID files. Freely downloadable EDID Manager 2.0 software is available for editing custom EDID tables.

Key Minder® continuously verifies HDCP compliance for quick, reliable switching

SpeedSwitch® Technology provides exceptional switching speed for HDCP-encrypted content
Supports custom EDID and output resolutions
User-defined scaled output resolutions can be supported by uploading custom EDID files, or capturing EDID from a display or other destination device.

Internal video test patterns and pink noise generator for calibration and setup
IN1804 models offer multiple video test patterns and audio pink noise to facilitate proper system setup and calibration of display devices.

Audio file playback
Up to 16 pre-recorded messages may be stored and played back over analog and embedded audio outputs.

Audio input gain and attenuation
Gain or attenuation can be adjusted for the audio input to eliminate noticeable differences when switching between sources.

Ethernet monitoring and control
Enables control and proactive monitoring over a LAN or WAN.

CEC - Consumer Electronics Control Capability
Standard, built-in CEC commands can be triggered to control displays or other AV devices connected to the HDMI or DTP2 outputs. The ability to control specific functions, such as power on/off, input selection, or volume level, is dependent on implementation by the device manufacturer.

Contact closure remote control with tally output
Contact closure ports enable remote video input selection control, while tally outputs provide +5 VDC to illuminate LEDs for video input identification. The contact and tally ports may be configured for independent use when the IN1804 is connected to an external control processor.

Compatible with TeamWork® Show Me® Cables
Show Me cables provide convenient connectivity and user input selection and control for TeamWork Collaboration Systems.

Available integrated DTP2 extension supports transmission of 4K/60 video, audio, and control up to 330 feet (100 meters) over a shielded CATx cable
IN1804 DI features one DTP2 input and IN1804 DO features one DTP2 output.

RS-232 insertion from the Ethernet control port
Saves system resources and simplifies installation by enabling a control processor to access remote RS-232 devices over Ethernet.

Compatible with CATx shielded twisted pair cable
Shielded twisted pair cabling with solid center conductor sizes of 24 AWG or better is recommended for optimal performance.

Remote powering of select DTP transmitters and receivers
The IN1804 can provide power to select DTP or DTP2 transmitters and receivers over the twisted pair connections, eliminating the need for separate power supplies at the remote units.

Accepts additional analog stereo audio signals
IN1804 DI and IN1804 DO support stereo audio signals for simultaneous transmission over the same shielded twisted pair cable.

Bidirectional RS-232 and IR pass-through for AV device control
Compatible with all DTP-enabled products plus XTP CrossPoint matrix switchers
Enables mixing and matching with desktop and wallplate endpoints, as well as other DTP and DTP2-enabled products to meet application requirements. IN1804 DI and IN1804 DO can be integrated with XTP and XTP II CrossPoint matrix switches to provide connectivity between presentation spaces and a larger, facility-wide system.

DTP2 output is compatible with HDBaseT-enabled devices
The IN1804 DO can be configured to send video and embedded audio, plus bidirectional RS-232 and IR signals to an HDBaseT-enabled display.
**OVERVIEW**

- **Vector 4K scaling**
  Delivers uncompromised scaling quality, glitch free switching, and logo keying

- **Supports video signals at resolutions up to 4K/60 at 4:4:4 chroma sampling and complies with HDCP 2.2**

- **Front panel mini USB configuration port for convenient system setup**

- **Contact closure with tally output**

- **Menu navigation controls for onscreen display**

- **Stereo audio embedding and de-embedding**
  The IN1804 can embed analog input audio onto the digital video outputs, and extract embedded two-channel audio from the digital video inputs

- **Ethernet control**
  Built-in web server and RS-232 insertion

- **DisplayPort, HDMI, and available DTP2 inputs**
  Ensure compatibility with a wide variety of video sources

- **Mirrored HDMI with available DTP2 Output**
  Extend 4K/60 video, audio, and control up to 330 feet (100 meters) over shielded CATx cable, and is compatible with HDBaseT-equipped displays

---

**Compatible with Extron DTP and DTP2 Twisted Pair Extenders**

IN1804 DI and IN1804 DO are compatible with all DTP and DTP2-enabled products. The Extron DTP Systems product line is the AV industry’s most comprehensive integration platform for small to mid-sized AV systems supporting video resolutions up to 4K over shielded CATx cable. This family includes numerous extender models in a wide variety of form factors and video formats, plus a broad offering of distribution amplifiers, switchers, and matrix switchers with essential AV signal processing and control features.
4K TeamWork Collaboration

This system accommodates BYOD wired, wireless, and permanently installed video sources up to 4K. Users can bring in a wide variety of devices, or use the resident PC to share content. The IN1804 scales all video to 3840x2160 to match the display’s native resolution to ensure optimal image quality with 4:4:4 chroma sampling and 60 Hz refresh rate. The Show Me cables and Cable Cubby 500 CCB with pushbutton controls add visual and tactile feedback to the user experience, keeping cables stowed neatly when not in use.

4K Meeting Room

Meeting participants can bring their own devices and share content wirelessly, by connecting to the ShareLink Collaboration Gateway; or physically, through HDMI and DisplayPort. The IN1804 DO automatically switches and scales the laptop video to 3840x2160 to match the native resolution of the displays and sends video data at 18 Gbps up to 330 feet (100 meters) to the DTP2 R 212 SA receiver, which has a built-in 2x15 watt stereo amplifier to drive the SM 3 speakers. The IPCP Pro 250 control processor manages each system component to ensure fully automatic, effortless operation.
### SPECIFICATIONS

**TRUE4K SPECIFICATION**

<table>
<thead>
<tr>
<th>Resolution and Refresh Rate</th>
<th>Chroma Sampling</th>
<th>Max Bit Depth per Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>4096 x 2160 at 60 Hz^2</td>
<td>4:4:4</td>
<td>8 bit</td>
</tr>
<tr>
<td>3840 x 2160 at 60 Hz</td>
<td>4:4:4, 4:2:2</td>
<td>10 bit</td>
</tr>
<tr>
<td>4096 x 2160 at 30 Hz</td>
<td>4:2:0</td>
<td></td>
</tr>
<tr>
<td>3840 x 2160 at 30 Hz</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Frame rate^3:
- 24, 25, 30, 50, or 60 fps

Chroma sampling^4:
- 4:4:4, 4:2:2, and 4:2:0

Color bit depth^5:
- 8 or 10 bits per color

Signal type:
- DVI v1.0, HDMI v1.4 and v2.0, DisplayPort v1.2, HDCP v1.4 and v2.2

Max. video data rate^1:
- 18 Gbps (5.4 Gbps per color)
- 21.6 Gbps (5.4 Gbps per lane)

**NOTE:** Subject to the maximum data rate limit. Use our calculator at www.extron.com/4Kdatarate to determine video parameters supported by this data rate.

### VIDEO INPUT

**Number/signal type**

- **All models**
  - 1 DisplayPort, HDCP compliant
- **IN1804 and IN1804 DO**
  - 1 HDMI, embedded
- **IN1804 DI**
  - 2 HDMI, embedded
  - 1 DTP/XTP configurable (HDCP compliant)
- **IN1804**
  - 1 stereo/mono, balanced or unbalanced

**Horizontal frequency**
- 15 kHz to 135 kHz

**Vertical frequency**
- 24 Hz to 75 Hz

**Resolution range**
- 640x480 to 4096x2160, 480i, 480p, 576i, 576p, 720p, 1080i, 1080p, and 2K
- 800x600 to 4096x2160 (up to 60 Hz) to 4096x2160 (up to 60 Hz)

### AUDIO

**Supported formats**
- Analog de-embedding: LPCM-2Ch
- HDMI pass-through: LPCM up to 7.2/4-bit/192 kHz, Dolby TrueHD, Dolby Digital Plus, Dolby Digital EX, Dolby Digital 5.1, Dolby Digital 2.0 Surround, Dolby Digital 2.0, DTS-HD, DTS ES Discrete 5.1, DTS ES Matrix 6.1, DTS Digital Surround 5.1, DTS 2-channel

**NOTE:** Unbalanced analog inputs applied at a DTP2 transmitter input have +12 dB of gain applied to bring the signal to a nominal level (IN1804 DI only).

### AUDIO OUTPUT

**Number/signal type**

- **All models**
  - 1 stereo, line level, balanced or unbalanced
- **IN1804 and IN1804 DI**
  - 2 HDMI, embedded
- **IN1804 DO**
  - 1 HDMI, embedded
  - 1 DTP2/XTP/HDBT (embedded digital and remote balanced/unbalanced analog)*
  - *Available only in DTP2 mode

**NOTE:** System gain for the analog DTP2 receiver output is rated at -12 dB (unbalanced) and -6 dB (balanced).

### GENERAL

**Power supply**
- Internal
- Input: 100-240 VAC, 50-60 Hz

**Power consumption**
- **IN1804**
  - 28 watts
- **IN1804 DI**
  - 36 watts
- **IN1804 DO**
  - 39 watts

**Enclosure dimensions**
- 1.66” H x 8.68” W x 11.5” D (1U high, half rack wide)
- (4.2 cm H x 22.0 cm W x 29.2 cm D)

**Product warranty**
- 3 years parts and labor

**Everlast power supply warranty**
- 7 years parts and labor

**NOTE:** All nominal levels are at ±10%.

### VIDEO OUTPUT

**Number/signal type**

- **IN1804 and IN1804 DI**
  - 2 HDMI (HDCP compliant)
  - 1 DTP2/XTP/HDBT configurable (HDCP compliant)
- **IN1804 DO**
  - 1 HDMI (HDCP compliant)
  - 1 DTP2/XTP/HDBT (embedded digital and remote balanced/unbalanced analog)*
  - *Available only in DTP2 mode

**Scaled resolution**
- 460x480, 800x600, 1024x768, 1280x800, 1280x1024, 1360x768, 1366x768, 1440x900, 1400x1050, 1600x900, 1600x1200, 1920x1200, 2048x1536, 2560x1080, 2560x1440, 2560x1600, 3840x2160, 4096x2160, 480p, 576p, 720p, 1080p, 1080i, 1280x768, 1366x768, 1440x900, 1600x900, 2048x1536, 2560x1080, 4096x2160*.

**Vertical frequency**
- 23.98 Hz, 24 Hz, 25 Hz, 29.97 Hz, 30 Hz, 50 Hz, 59.94 Hz, 60 Hz

### WORLDWIDE SALES OFFICES

- Anaheim • Raleigh • Silicon Valley • Dallas • New York • Washington, DC • Toronto • Mexico City • Paris • London
- Frankfurt • Madrid • Stockholm • Amersfoort • Moscow • Dubai • Johannesburg • Tel Aviv • Sydney • Melbourne
- Bangalore • Mumbai • New Delhi • Singapore • Seoul • Shanghai • Beijing • Hong Kong • Tokyo

For complete specifications, please go to www.extron.com

Specifications are subject to change without notice.