SME 211

STREAMING MEDIA ENCODER

Advanced Video Processing for High Performance AV Streaming

- ▶ Process live, high resolution HDMI video and audio
- ▶ Stream at two resolutions simultaneously with independent stream control
- ▶ Simultaneous multicast and unicast streaming
- ▶ RTMP streaming protocol support for popular third-party hosting services
- ▶ Audio mixing and DSP functionality

Extron

Introduction

The **SME 211** is a high performance H.264 streaming media encoder for distributing audio and video signals over IP networks. It accepts an HDMI signal with embedded audio and an analog audio signal. Extron high performance scaling and flexible signal processing facilitate superior image quality for content from different sources. The SME 211 supports unicast and multicast streaming protocols, including RTMP for streaming directly to major Content Delivery Networks – CDNs, or social media platforms such as Facebook and YouTube. CDN-specific presets simplify configuration. The SME 211 can stream at two different resolutions and bit rates concurrently, supporting up to six simultaneous streams with push and pull streaming. Built in audio mixing and DSP features enable enhanced audio processing without requiring external mixing and DSP equipment.

Extensive Streaming Capabilities

The SME 211 offers extensive streaming capabilities with two encodes, each offering independent control of streaming protocol, bit rate, and stream resolutions ranging from 512x288 to 1080p. The dual encode functionality supports streaming at high resolution to an SMD-series decoder in an overflow room while simultaneously streaming at a lower resolution for remote viewing applications, such as FaceBook Live. Bit rates can range from 200 Kbps to 10 Mbps for video and 80 Kbps to 384 Kbps for audio. A range of streaming transport protocols and session management methods are supported. These capabilities provide flexibility to stream from the SME 211 to a variety of devices in different system configurations and network conditions.
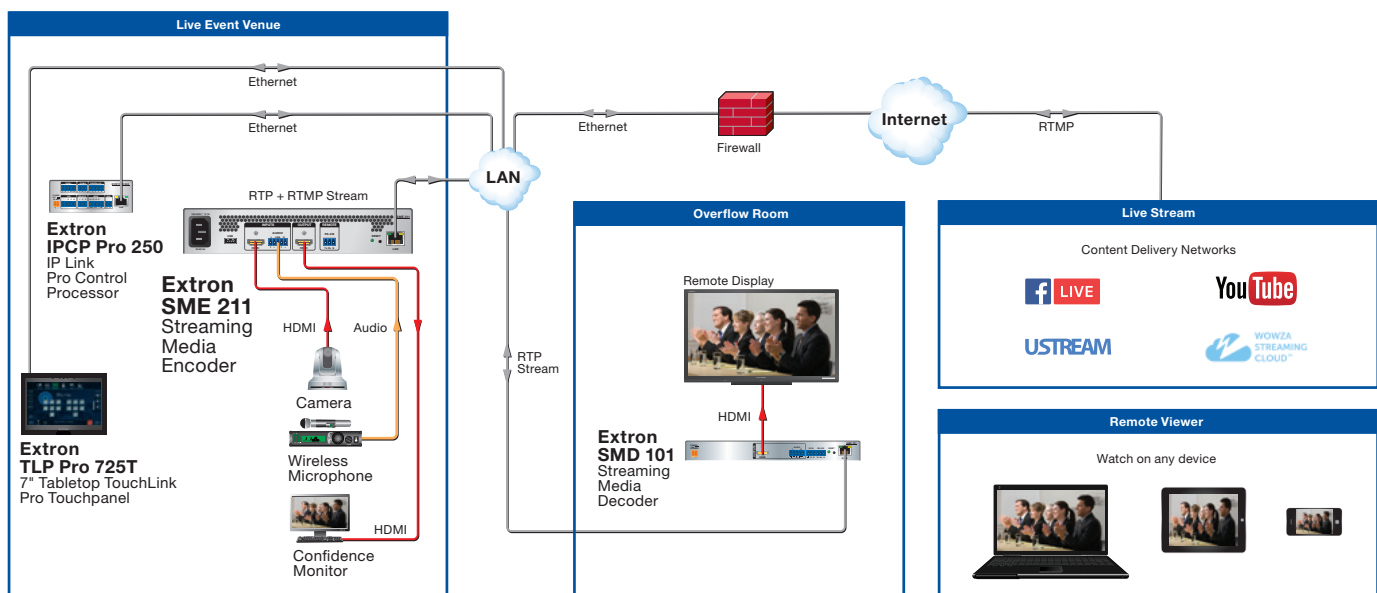
Signal Processing Simplifies Setup and Operation

Like many other Extron AV products, the SME 211 offers comprehensive digital and analog signal processing features that make it easy to connect with various presentation sources. The SME 211 provides high quality scaling with configurable aspect ratio control allowing selection of FILL, FOLLOW, or FIT modes as well as size, and position settings. EDID Minder® automatically manages EDID communications to ensure sources power up properly and a reliable output signal is provided. When an encrypted source is detected, intelligent HDCP signal notification presents a green screen with HDCP message to the stream and HDMI confidence output.

Flexible System Control Options

The SME 211 provides several options for local or remote control. The front panel buttons and LED indicators provide a simple interface to manage, monitor, and control the stream for a wide variety of applications. The SME 211 also features an RS-232 port and an Ethernet port to interface with remote devices and control systems.

A USB port on the rear of the unit is available for connection to a keyboard and mouse, to serve as the interface for the embedded web browser. The browser can be viewed on the HDMI output connection and serves as a convenient method to access network setup and control.

Process live, high resolution HDMI video and audio
Combine high quality video and audio streams for an enhanced viewing experience.

Stream at two resolutions and bit rates simultaneously with independent stream control
Stream at high resolutions for overflow applications and lower resolutions for distribution and confidence viewing to two different decoding destinations.

Simultaneous multicast and unicast streaming
The SME 211 supports multiple stream modes allowing simultaneous push and pull streaming in unicast or multicast for each encode.

Audio mixing and DSP functionality
Produce a quality audio experience without requiring the use of external mixing and DSP equipment.

RTMP streaming protocol support for popular third-party hosting services
RTMP push streaming with stream name or key, and user authentication support services like YouTube Live, Wowza Streaming Cloud, Facebook Live, Ustream, and more.

Integrate with SMD Streaming Media Decoders to provide complete end-to-end streaming systems

Stream at resolutions from 512x288 to 1080p
High resolutions deliver superior quality images for overflow applications and lower resolutions are more efficient for streaming distribution and confidence viewing applications.

High quality scaling with aspect ratio control, size, and position
Configurable aspect ratio control allows selection of FILL, FOLLOW, or FIT modes as well as zoom and position settings.

Live preview window
Access an intuitive HTML5 web interface with an embedded video window for confidence viewing of the live stream, eliminating the need for local decoding hardware.

Video encoding quality adjustments
In addition to resolution, video bit rate, and frame rate, fine tuning adjustments for constant or variable bit rate control, GOP length, and audio bit rate are available to fine tune encoding quality to fit any application.

Presets for quick recall of system configurations
Store and recall specific encoder and streaming configuration settings. Specific presets for CDN's and live streaming platforms simplify connection to social media sites such as YouTube, Facebook Live, and Ustream.
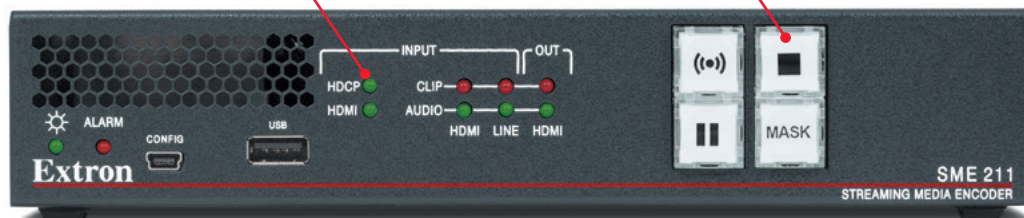
SME 211

Status LEDs
Easily determine status of video input signal, HDCP and audio levels.

Front panel controls
Quickly access all basic stream controls, and use the mask function for a smooth transition to a predefined still-image.

USB ports
Copy user files or connect keyboard or mouse for direct access to the web user interface.

HDMI input
Connect a local, High Definition computer or camera source with embedded audio.

Analog audio input
Connect analog line level audio from any source.

HDMI confidence output
Display an accurate preview of the active stream on a local display.

Gigabit Ethernet port
Connect to a network for streaming, and configure and control from anywhere through the built in web user interface or SIS commands.

VIDEO INPUT

Number/signal type	1 HDMI digital video (HDCP content not supported)
Resolution range	480i, 480p, 576i, 576p, 720p, 1080i, 1080p, 640x480 to 1920x1200* *reduced blanking
Format	RGB and YCbCr digital video

VIDEO PROCESSING

Digital sampling	8-, 10-, or 12-bits per channel, 165 MHz pixel clock (HDMI)
Digital processing	4:2:2, 8-bits per color
Compression	H.264/AVC (ITU H.264, ISO/IEC 14496-10) 4:2:0, 8-bit color Encoding profiles: High, Main, Baseline; Encoding levels: 4.1, 4.0, 3.2, 3.1, 3.0; configurable GOP
Bit rate	200 kbps to 10 Mbps
Bit rate control	Selectable (variable, constrained, or constant)
Latency	130 msec* (encode), 600 msec* (encode/decode) *Indicates minimum latency. Encoder, decoder, and network dependencies apply.

VIDEO OUTPUT

Number/signal type	1 H.264/AVC digital video over Ethernet 1 HDMI digital video
Scaled resolution	HDMI output: 480p, 720p, 1080p, 512x288, 1024x768, 1280x1024 Stream: 480p, 720p, 1080p, 512x288, 1024x768, 1280x1024
Frame rate	Up to 30 fps for all output rates
Formats	H.264/AVC (Profile type: High, Main, Baseline. Profile level: 4.1, 4.0, 3.2, 3.1, 3.0)

AUDIO INPUT

Analog	
Number/signal type	1 stereo (balanced or unbalanced)
Digital	
Number/signal type	1 stereo, digital de-embedded from HDMI

AUDIO PROCESSING

Sampling rate	16 bit, 48 kHz or 44.1 kHz sampling
Compression	AAC-LC MPEG-4 (ISO/IEC 14496-3:2005)
Bit rate	80 kbps to 320 kbps, stereo

AUDIO OUTPUT — DIGITAL

Number/signal type	1 stereo, HDMI (re-embedded audio) 1 AAC-LC digital audio over Ethernet

COMMUNICATION

USB	
USB configuration port	1 front panel female USB Mini-B
Mouse and keyboard port	Connect via any USB ports on SME 211.
USB standards	USB 1.1, USB 2.0, high/full/low speed hosts
Serial control	
Serial control port	1 bidirectional RS-232, rear panel 3.5 mm captive screw connector, 3-pole
Ethernet control	
Ethernet host port	1 female RJ-45
Ethernet data rate	10/100/1000Base-T, half/full duplex with autodetect
Maximum Transmission Unit	1000-1500 MTU, adjustable
Protocols	
Streaming	Pull: RTP/RTCP (RFC 3550), RTSP (RFC 2326), Interleaved RTSP (RTP/RTSP), RTP/RTSP tunneled through HTTP unicast or multicast Push: MPEG2-TS/UDP* (ISO/IEC 13818-1), MPEG2-TS/RTP* (RFC 2250, IPTV-ID-0087, ETSI TS 102 034), Direct RTP (RFC 3984), SAP (RFC2974), SDP (RFC4566), unicast or multicast, RTMP
Transport	TCP, UDP, multicast IGMPv3 (RFC 3376) or unicast
All supported	IGMPv3 (RFC 3376), IP, UDP, SSL, DHCP, HTTP, HTTPS, RTP, RTSP, SNMP V2 (RFC 1213), SAP (RFC2974), SDP (RFC4566), QoS (RFC 2474), NTPv4 (RFC 4330)

GENERAL

Power supply	Internal Input: 100-240 VAC, 50-60 Hz
Power consumption	23 watts typical
Thermal dissipation	50 BTU/hr
Enclosure dimensions	1.66" H x 8.68" W x 9.5" D (1U high, half rack wide) (42 mm H x 221 mm W x 216 mm D) (Depth excludes connectors.)
Regulatory compliance	
Safety	CE, c-UL, UL
EMI/EMC	CE, C-Tick, FCC Class A, ICES, VCCI
Environmental	Complies with the appropriate requirements of RoHS and WEEE.

Model	Version Description	Part number
SME 211	Single Channel H.264 Streaming Media Encoder	60-1763-01

For complete specifications, please go to www.extron.com
Specifications are subject to change without notice.

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