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|--------|-------|-------|--------|------|-----|------|
| HD-SDI | 1080i | 4:2:0 | H.264 | VLAN | IP | SNMP |
| HDMI | 720p | 8 bit | MPEG-4 | tag | ASI | trap |



MPEG-4 (H.264) ENCODER

For encoding digital (SDI, HD-SDI, HDMI) and analogue (CVBS, S-Video, YPbPr) base-band video signals according to H.264/MPEG-4 AVC.



Baseband analogue video signals (CVBS/S-Video, YPbPr) and uncompressed digital video signals (SDI, HD-SDI, HDMI) have to be digitalized and compressed in order to make them appropriate for digital video broadcasting.

The device processes both analogue and digital video sources, encodes them according to the standard H.264/MPEG-4 AVC, and forwards the 188-byte transport stream packets embedded in UDP/IP or RTP/IP packets through IP network as single-program transport streams. These single-program transport streams are available at the ASI (Asynchronous Serial Interface) outputs, too.

The supported video formats are 1080i, 720p, 576i and 480i with 50, 59.94, and 60 Hz refresh rates. High-resolution sources can be downscaled to standard-resolution ones in order to reduce the output data rate. Additionally, standard-resolution sources can be converted to 96×96 or 128×96 pixel thumbnails for picture-in-picture (PiP) applications.

The device processes and encodes one stereo audio signal per encoder unit according to MPEG-1 Layer II by default but also AAC-LC is available as an option.

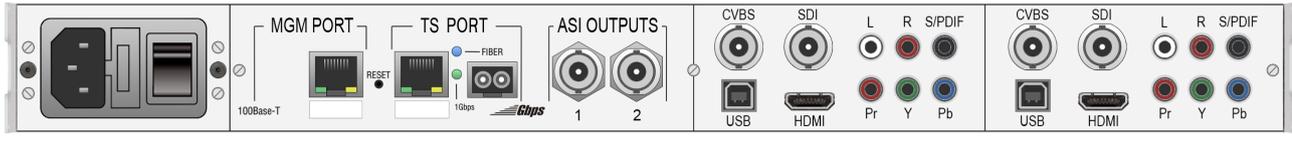
PAT, PMT, and SDT packets are always inserted in the output transport stream. Additionally, the NIT (Network Information Table) insertion can be enabled, too. It allows to use the encoder in some cases even without a multiplexer.

Fields of application:

- ✓ processing and forwarding the output signal of TV studios in a format which is appropriate for digital video broadcasting
- ✓ generating IPTV channels (SPTS, multicast) from HDMI sources (camera, computer)

- ✓ single-channel and dual-channel versions
- ✓ SDI, HD-SDI, and HDMI digital inputs
- ✓ CVBS/S-Video and YPbPr analogue inputs
- ✓ teletext and WSS processing and insertion
- ✓ 4:2:0 chroma subsampling
- ✓ 8-bit quantization
- ✓ constant or variable video bitrate
- ✓ MPEG-1 Layer II or AAC-LC audio coding
- ✓ PAT, PMT, SDT, NIT insertion
- ✓ SFP (Mini GBIC), RJ45, and ASI sockets
- ✓ UDP/IP or RTP/IP protocol
- ✓ multiple streaming
- ✓ VLAN tagging
- ✓ separated management interface
- ✓ user-friendly HTML5 WebGUI
- ✓ SNMP traps
- ✓ firmware upgrade over WebGUI
- ✓ extremely low power consumption

MPEG-4 (H.264) ENCODER



Technical data

Video input

| | |
|-----------------|--|
| Analogue inputs | CVBS (PAL, SECAM, NTSC) or S-Video YPbPr 1 Vpp / 75 Ω |
| Digital inputs | HDMI 1.3 SDI (SMPTE 259M) HD-SDI (SMPTE 292M) |

Audio input

| | |
|----------------|--|
| Analogue input | L, R asymmetrical, 2 Vpp / >2 kΩ or L, R symmetrical 0 dB / 600 Ω |
| Digital input | HDMI 1.3 SDI embedded audio S/PDIF compressed audio |

Video encoding parameters

| | |
|--------------|---|
| System | ISO / IEC 14496-10 (H.264 / AVC) High Profile, Level 4.0 4:2:0, 8-bit YCbCr pixels CBR/VBR stream selectable |
| Picture size | max. 1920 × 1080 50i, 60i |
| Data rate | 2 to 24 Mbit/s |

Audio encoding parameters

| | |
|--------------------|---|
| System | ISO 11172-3 (MPEG-1 audio layer II) or MPEG-4 AAC-LC |
| Number of channels | 2 |
| Sampling frequency | 48 kHz (16, 20, 24 bit L-R) |
| Data rate | max. 384 kbit/s (MPEG-1 layer II) |

Multiplexer

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|------------------|----------------------------|
| System | ISO 13818-1 (MPEG-2 TS) |
| Output data rate | max. 50 Mbit/s (CBR / VBR) |
| PSI/SI tables | PAT, PMT, SDT, NIT |
| Private streams | TXT, VPS, WSS |

ASI output

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|------------|--|
| Standard | according to EN 50083-9 (for interconnection between devices) |
| Impedance | 75 Ω |
| Connectors | BNC sockets (for each encoder) |

IP output

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|--------------------|---|
| Transport streams | 10-, 100- and 1000Base-T |
| Protocol | Ipv4, ARP, UDP |
| Multiple streaming | 4 pcs UDP/RTP stream per encoder unit configurable for all outputs |
| VLAN tagging | |
| Connector type | RJ-45, SFP (Mini GBIC) socket |

Management port

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|----------------|--------------------------------|
| IP input | 10-, 100Base-T |
| Protocol | Ipv4, ARP, ICMP-ping, TCP, UDP |
| Connector type | RJ-45 |

General data

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|--------------------------|--|
| Service | continuous |
| Power requirement | 90 ~ 264 V / 47 ~ 440 Hz |
| Power consumption | max. 35 VA |
| Mass | approx. 3.8 kg |
| Physical dimensions | 19" × 1 HU |
| Width × Height × Depth | 483 × 43.6 × 473 mm |
| Temperature at operation | +5...+40°C, relative humidity max. 80% |

Device control

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|-------------------------|---|
| Programming and control | over a separate management port in web environment with a HTML5 GUI which is optimized to the latest Firefox browser |
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| | |
|-----------------------|-------------------------|
| Management IP address | 192.168.10.10/24 |
|-----------------------|-------------------------|

ordering data:

| | |
|-------------------------|---|
| CW-4411.10 | 1×SDI/HDMI/CVBS/YPrPb+RCA inputs, 1×ASI/IP (SPTS) output |
| CW-4411.11 | 1×SDI/HDMI/CVBS/YPrPb+XLR inputs, 1×ASI/IP (SPTS) output |
| CW-4411.20 | 1×SDI/HDMI/S-Video/YPrPb+RCA inputs, 1×ASI/IP (SPTS) output |
| CW-4411.21 | 1×SDI/HDMI/S-Video/YPrPb+XLR inputs, 1×ASI/IP (SPTS) output |
| CW-4412.10 | 2×SDI/HDMI/CVBS/YPrPb+RCA inputs, 2×ASI/IP (SPTS) output |
| CW-4412.20 | 2×SDI/HDMI/S-Video/YPrPb+RCA inputs, 2×ASI/IP (SPTS) output |
| PIP OPTION | Picture in Picture option for MPEG-4 encoders |
| AAC AUDIO OPTION | AAC audio for MPEG-4 encoders (price per channel) |

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