

HD-SDI MPEG2 H.264 DOLBY HDMI

All-in-One HD Encoder + Modulator  
HD Encodulator



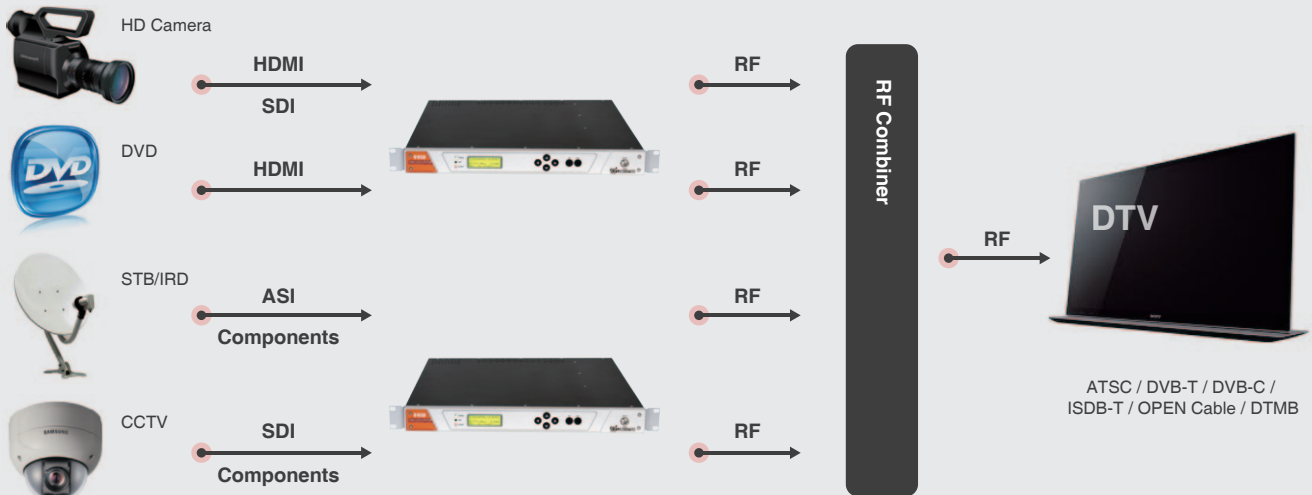
Create HDTV distribution System using various HD/SD/AV sources

# HD Encodulator

## Low Latency (Fast 800 ms)

- Encoder plus DTV modulator in one rack unit case
- Video and audio CODEC selectable: MPEG2 / H.264, PEG1-L2 / AC3 / AAC
- Input ports: HDMI, HD-SDI, Y/Pb/Pr, ASI, Analog Stereo Audio(L/R), SPDIF (optical/coaxial), and AES/EBU
- High power RF output (10dBm for 1ch)
- Variable DTV modulation options ( ATSC, OpenCable, DVB-T/C, ISDB-T, DTMB )
- Internal PSI/PSIP generation or external input through ASI-Input port
- Firmware update and control through web server
- HTTP and SNMP control with 100Base-T

### HD ENCODULATOR Full Diagram



## System Specification

### Audio Encoder

Input : SDI embedded, HDMI embedded, PDIF(Optic/Coax), AES-EBU(BNC), Analog Stereo Sample rate converter

Dolby Digital CE Stereo Encoder (for ATSC, DTMB)

- Output bit rates: 128/192/256/384 Kbps
- Encoding sample rates: 48 KHz

MPEG-1 Layer II Stereo Encoder (for DVB-T, DTMB)

- Output bit rate: 192/224/256/320/384 Kbps
- Encoding sample rates: 32/44.1/48KHz AAC-LC, HE-AAC v1, HE-AAC v2 Stereo Encoder (for ISDB-T)
- Output bit rate(LC):32/48/56/64/80/96/112/128/160/192/224/256/320/384 Kbps
- Output bit rate(HE-AAC v1): 32/48/56/64/80/96/112/128/160/192 Kbps
- Output bit rate(HE-AAC v1): 32/48/56/64/80/96 Kbps
- Audio sample rate: 32/44.1/48KHz

Pass-through of Dolby Digital Stereo/5.1ch, MPEG-1 Layer II and AAC-LC audio support

### Video Encoder

Input : HD-SDI, HDMI, Y/Pb/Pr

HD Resolutions & frame(progressive) or field(interlaced) rates:

- 1920x1080 at 60p, 50p via internal interlacer
- 1920x1080 at 60i, 59.94i, 50i, 30p, 29.97p, 25p, 24p, 23.97p
- 1280x720 at 60p, 59.94p, 50p. SD

Resolutions and frame/field rates

- 720x480: 59.94i / - 720x576: 50i

MPEG2 HD/SD Encoder

- ISO/IEC 13818-2 (MPEG2 HP@HL, MP@HL, MP@ML)
- HD video bit rate: 25~0.5 Mbps
- SD video bit rate: 25~0.5 Mbps
- Sub 1.5 seconds encoder latency, configurable

H.264 HD/SD Encoder

- Baseline, Main and High Profiles support
- HD video bit rate: 25~0.5 Mbps
- SD video bit rate: 25~0.5 Mbps
- Sub 0.8 seconds encoder latency, configurable.

Maximum TS bit rate: 30 Mbps.

Advanced Settings(option)

- Adaptive I-frame insertion: enable/disable
- Bit rate control: CBR, VBR and capped-VBR
- MCTF strength: 0(off) to 7(maximum)
- Inverse Telecine enable/disable
- Scene change detection and fade detection enable/disable

### PSI/SI/PSIP

PSI/SI: PAT, PMT generation enable/disable

PSIP: MGT, TVCT/CVCT generation enable/disable,

- Short name, major and minor channel number setting

External PSI/PSIP generator input via "ASI IN" port

### Modulation

ATSC(8VSB) Modulation Mode: 8VSB  
Symbol Rate 10.762 MSps  
SNR(MER): >35 dB  
Maximum Output Level : +10dBm

QAM-B / OpenCable Standard : ITU-T J.83 Annex B  
Constellation types & Symbol Rates:  
- 64QAM : 5.057 MSps - 256QAM: 5.361 MSps  
Channel Bandwidth: 6MHz / SNR(MER) : >40dB  
Maximum Output Level : +7dBm

DVB-T Modulation Mode: QPSK, 16QAM, 64QAM  
Transmission Mode: 2K, 4K, 8K  
Channel Bandwidth: 5, 6, 7, 8 MHz  
Code Rate: 1/2, 2/3, 3/4, 5/6, 7/8  
Guard Interval: 1/4, 1/8, 1/16, 1/32  
SNR(MER): >40dB / Maximum Output : +7dBm

DVB-C Standard: ITU-T J.83 Annex A/C  
Constellation types: 16QAM, 32QAM, 64QAM, 128QAM, 256QAM  
Symbol Rate: 0.87~7.2MSps  
Channel Bandwidth: 1~8.280MHz  
SNR(MER): >40dB / Maximum Output : +7dBm

TS over IP Output Ethernet 10/100Base-T  
Connector: RJ-45, UDP/IP, RTP/UDP/IP, Unicast, Multicast

RF Output Main Output: F-Type 75Ω 1ea @ rear  
-20dB Output: F-Type 75Ω 1ea @ front  
Level Adjustment: 0~-27dB in 0.5dB steps  
Center Frequency Range: 30~999 MHz  
Spurious: <-60dBc relative to output level  
Harmonics: <-50dBc / Return Loss: >15dB  
Phase Noise: <-98dBc/Hz @20kHz offset

