

# E7934-TX HDMI Modulator



## Four HDMI HD Videos to DVB-T RF

The E7934TX is a stand-alone Multi-Video to DVB-T HD converter, ( HDMI Modulator ) the ideal choice to capture up to Four independent Live HD HDMI audio/video sources and encode it to one Digital Terrestrial Television frequency, to distribute to any standard DVB-T Television, in every room, via the existing Antenna Coax Cables.

The Simultaneous IP streaming output allows the transmission of the four programs to any IPTV network over cable or WI-FI, to eventually serve any i-pad, i-pod, i-phone, laptop, Internet TV, Recording-to-Disk and monitoring systems.

Easy to install as table-top or Rack Mount unit, this converter can inject its DVB-T output frequency to any local wall-mount antenna socket, delivering its signal to all the other Antenna sockets of the building, in most cases without the need for modifications to the existing antenna cables.

Alternatively, this converter can be placed at roof level, mixing its output signal directly to the existing antenna. Multiple units can be used together, in order to achieve the wanted number of distributed HD video to DVB-T programs. Units can also be distributed throughout the building, capturing the local HDMI feeds where these are, injecting the generated DVBT output frequency to the local wall-mounted Antenna socket, to distribute all over the building.

Based on the latest MPEG-4 AVC/H.264 HD High Profile Level 4.0 compression technology, the E7934TX delivers full broadcast picture and sound quality for the best FULL-HD viewing experience on any FULL-HD DVB-T TV.

The 7934TX is the top quality and reliable solution to distribute HDTV signals to common DVB-T TVs in Hotels, Hospitals, Commercial Centers, Digital Signage Applications, Information Points, the creation of Corporate TV channels, Surveillance systems, Community & College Television Channels, HD Home Entertainment, ON-TV DOMOTICS, etc...

## PRODUCT OVERVIEW

The E7934TX is a compact, professional, Table-Top / Rack Mount four channels HDMI HD to DVB-T Video Encoder Modulator box, the perfect building-block to distribute multiple HDMI HD Video Contents to unlimited standard FULL-HD DVB-T Televisions in every room.

It installs and works in minutes, providing outstanding picture and sound quality on any receiving DVB-T TV, without the need of changes to the existing Antenna Coax Cable system.

Each of the Four HD Audio/Video inputs can be taken from any existing HDMI video source such as DVD and BlueRay disk players, Hard Disk and USB pen Video Players, DVI computer outputs, DVI & VGA outputs from Instruments, Satellite Terrestrial and Cable Set Top Boxes, Surveillance Camera systems, gaming consoles, HOME Domotics & Monitoring, and any other device which may have a DVI or HDMI video output.

The E7934TX accepts any 1080i 1080p 720p standard Video format.

Stereo or Surround sound is also taken from the HDMI cable and encoded into Mpeg-1 Layer2 sound, compatible with any surround system and TVs

The output DVB-T frequency can be set to any free channel within the VHF/UHF range

The LCN feature allows to set the destination store number for each of the program, so every TV will tune and store the new programs automatically to the same store number in each room.

## CONVERTER FEATURES

### Audio/Video Inputs

- 4x HDMI HD with stereo or multi-channel sound
- DVI via common DVI to HDMI simple cable
- Full HD i/p Resolutions

### Video Encoding Compressions

- Mpeg-4 H.264 AVC HD High Profile Level 4.0

### Audio Encoding Compression

- Mpeg-1 L2 Standard Stereo and surround

### RF Output

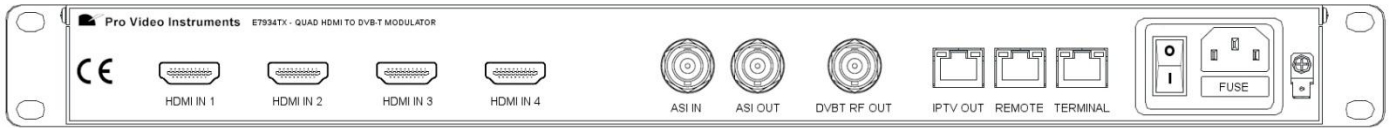
- DVB-T Digital Terrestrial Television Frequency
- World-wide standard, compatible with any TV
- Selectable output channel within VHF/UHF bands
- Injection of RF output signal at any existing wall-mounted antenna socket, or at the roof antenna, distributing to all the other antenna wall-sockets and TVs of the building
- Selectable "store-number" to memorize the new programs to the wanted store number on all TVs

### IPTV Streaming Output

- Simultaneous RJ45 IP Streaming out, UDP Multicast/Unicast

### Setup

- Via Front panel LCD & Keyboard or Remote PC via our NMS software – SNMP ( included )



**E7934TX Four HDMI to DVB-T Converter**

This unit can be used as Desktop or Rack Mounted

**Installation**

This converter can be installed on any existing standard Rack system or as a Stand Alone Table Top unit, and takes 1 RU height space only.

The unit operates in a quiet, cold and safe mode.

No air conditioned room is required to operate 24/7 nonstop.

There are no particular requirements in terms of air cycle and humidity, and the unit can be installed into almost any environment as niches, under roof, technical rooms, on vibrating vehicles as trucks, cruise liners, yachts, trains, etc.

A single 100-240 VAC 50/60Hz is required, 26 Watts consumption.

Multiple converters can be operated in different locations throughout the building, wherever the audio/video source signals are, injecting their output DVBT frequencies to the local available wall-mount antenna socket.

There is no need to inject the output DVBT signal at the roof antenna level, since by injecting the DVBT out at any antenna wall-socket of the building will distribute the signal to all the other antenna sockets, in every room, without modifications to the existing antenna coax cables.

**Remote Control**

The unit can be fully controlled and set via the front panel keyboard and LCD.

The Unit can also be controlled remotely via any IP network and the internet through our NMS Network Management Software, included.

The same NMS software can control Unlimited units at unlimited remote locations..

**Channel Descriptors and Multiplexer**

Each E7934TX includes a full-featured user-friendly Transport Stream Multiplexer, which allows the operator to quickly set all the required parameters and the SERVICE PROGRAM NAMES that will be shown on the TVs. An ASI Transport Stream Input allows to feed the unit from another E7934TX ( cascade of multiple units into one single DVB-T frequency out ) or from our RX8450 satellite receiver to add some sat programs to the DVB-T output together with the four encoded video, up to the maximum bandwidth of the DVB-T modulator which is 31.5 Megabit/s when used in UHF 8 Mhz.

**System Redundancy**

For mission-critical applications, multiple units can be configured to manage multiple programs and redundancy, controlled by our NMS software.

**Professional RF output**

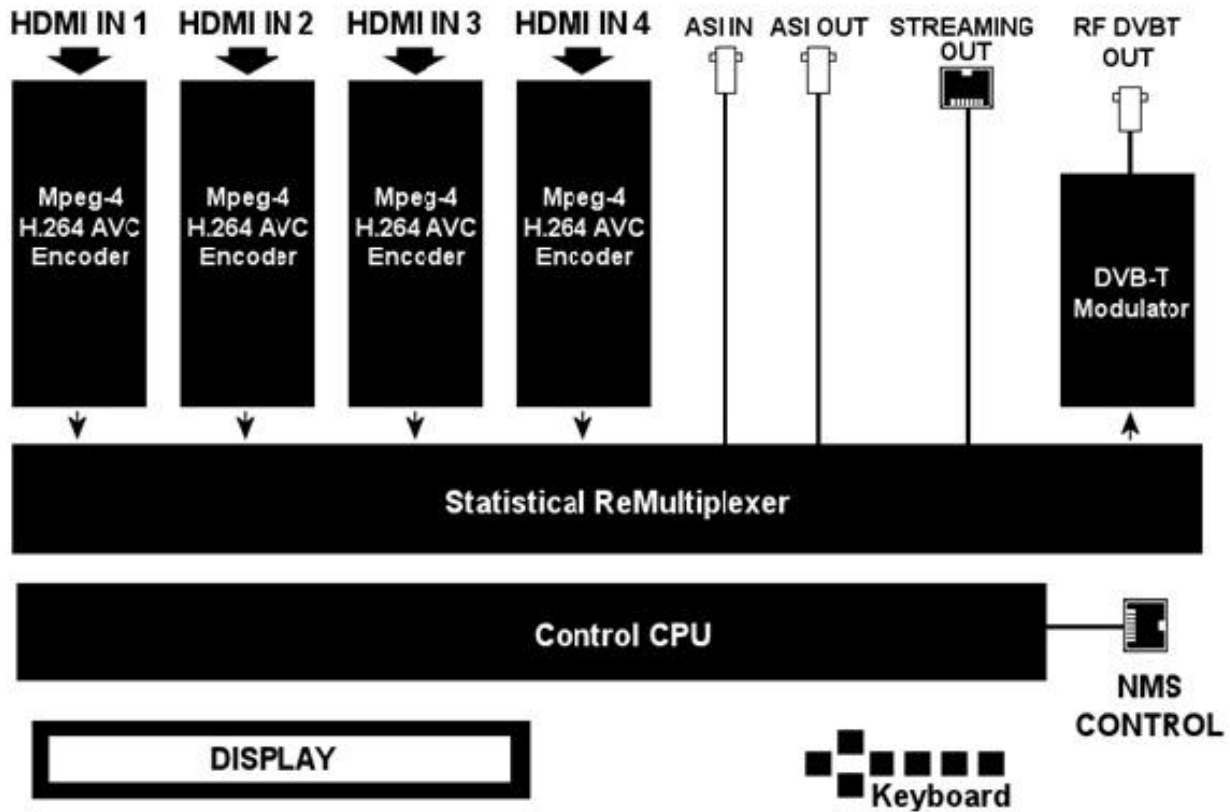
This unit generates a Broadcast-Grade DVB-T signal output, so it can be used mixed to any existing Coax and HFC distribution network or transmitted on-air via proper RF amplifiers and Antennas, with excellent Spectrum Shoulders, out-of-band Harmonic and spurious suppression and excellent MER quality >40 dB.

**Professional IPTV output**

The E7934TX also outputs the four encoded programs simultaneously to the IP Streaming output port, to feed any IP Network as LAN/WAN/WIFI.

The streams can be received in unicast or multicast by unlimited devices as iPads, iPhones, iPods, Smart-phones, Internet-enabled TVs, IP set top boxes, computers and laptops, Hard Disk recording and monitoring systems. The E7934TX serves both Rooms TVs and IP devices.

## Functional Diagram



### Four HDMI Video Inputs

The E7934TX has four independent HDMI inputs to connect four HD sources as Blu-ray Discs, Video Cameras, DVD players, Hard Disk Players, Computer outputs, etc. Audio can be stereo or multi-channel surround, taken directly from the HDMI cable without the need for any extra cable.

### Full HD resolutions

The E7934TX is the solution to deliver True FULL HD video to any Full-HD capable DVB-T TV via the existing antenna cable. Each of the Four HDMI inputs connects to any 1080i 720p HDMI video source

### Outstanding Video Encoding Quality

The E7934TX creates and distributes to all the DVBT TVs four programs from the HDMI inputs by encoding the contents into the latest MPEG-4 H.264 AVC HD High Profile Level 4.0 for the today's best possible quality of picture. There almost no loss of picture and sound quality between the source and the program viewed on any DVB-T TV then.

### Audio Encoding

Each of the four HDMI inputs also captures the related audio from the same HDMI connection.

There is no need of any other cable but one HDMI per each of the four inputs.

Each audio is encoded into Mpeg1-L2 as stereo or Surround, for a perfect sound experience on any Viewing TV

### ASI In/Out

These connectors can be used to input the signal from other units (cascade) or to output the encoded signal with complete SI descriptors to any following ASI device.

### Streaming Out

Four SPTS ( single program transport stream ) are output to this IP Port ( rj45 type ) simultaneously to the DVBT output, so the four encoded programs can be distributed to both DVB-T coax and IP networks.

### RF OUT

Outputs the generated DVB-T frequency with an adjustable level to adapt to any existing Coax Cable distribution network.

## Unlimited Applications



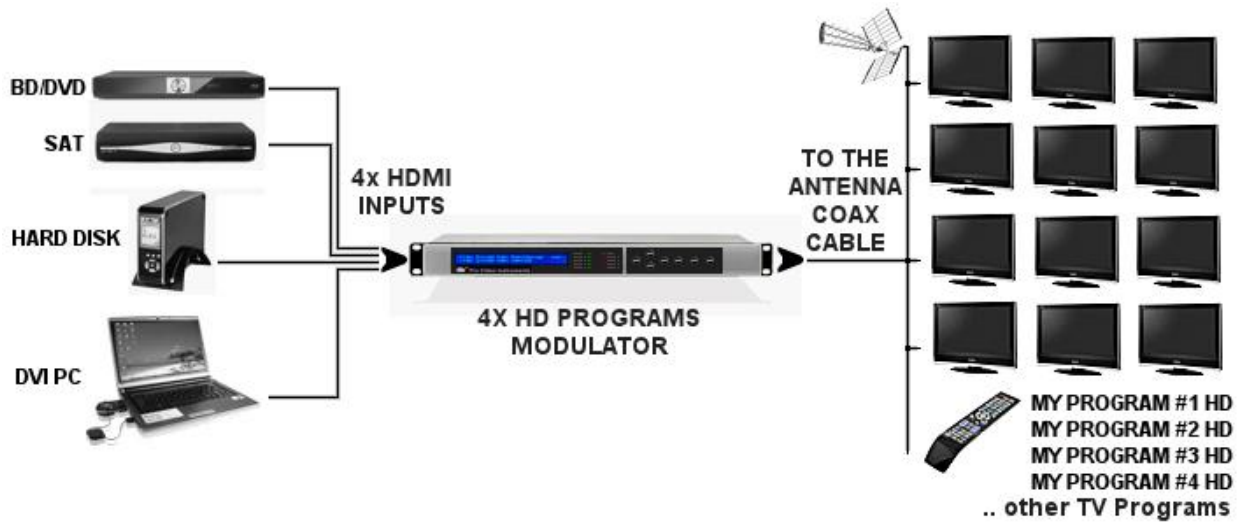
Thanks to its features and available outputs, the E7934TX Video Encoder Modulator can be used in almost every possible consumer and professional Live HD Video capture and distribution application.

### Most common Applications

- **Hotels & Resorts**
  - Advertising Channels
  - Restaurant Menu Channel
  - Meeting Video Distribution
  - Local Information Channel
  - BAR Set Top Box Video Distribution to all Guest Rooms
  - Landscape Cams Channels
  - Surveillance
  - Digital Signage
- **Hospitals**
  - Patient TV Channels
  - Hard-Disk Recording of surgery rooms
  - Student Training Broadcasting
  - HI-DEF conferencing
  - Training Channels
  - Surveillance/Monitoring
  - Digital Signage
- **Shops & Commercial Centers**
  - Promotional TV channels
  - DVD & BlueRay Players Video distribution
  - Internet Content distribution
  - HD Video distribution via existing Coax Cables or via ON-AIR internal Broadcasting
  - Digital Signage
- **Boats, Yachts, Cruise Liners, Technical Vessels**
  - On-Board Television from Media Players, DVDs, BlueRays, Set Top Boxes
  - Technical Info Channels from computers and instruments
  - GPS Channel & Navigation channels
  - Courtesy-cam channels
  - Training & Corporate channels
- **Corporate**
  - Corporate TV Channels
  - Training Channels
  - VIP Entertainment Channels
  - Meeting(s) Video Distribution
  - Local Information Channel
  - Overview-camera Channels
  - Surveillance
- **Residences and Private Homes**
  - HD Video distribution from any source to all chosen digital TVs, in every room or apartment
  - Centralized Video Surveillance, viewable on any TV
  - Centralized electricity, water, heating monitoring and control via a standard TV
  - HD Set Top Box and HD Player distribution to all TVs
- **Schools and Campuses**
  - Lessons/Courses broadcasting
  - Campus TV Channels
  - Info Channels
  - Courses Recording ( IP to disk)
  - Resolution-scaled broadcasting to I-Phones, I-Pads, etc
- **Sport**
  - GYM TV to any TV-Enabled device
  - On-Board HD/SD Camera broadcasting
  - HD camera links to Control Room
  - Sports Events RF and Internet broadcasting
- **More**
  - All other possible applications where Video to DVB-T and IPTV are required.

# Typical Configurations

## 4x HDMI to DVB-T distribution

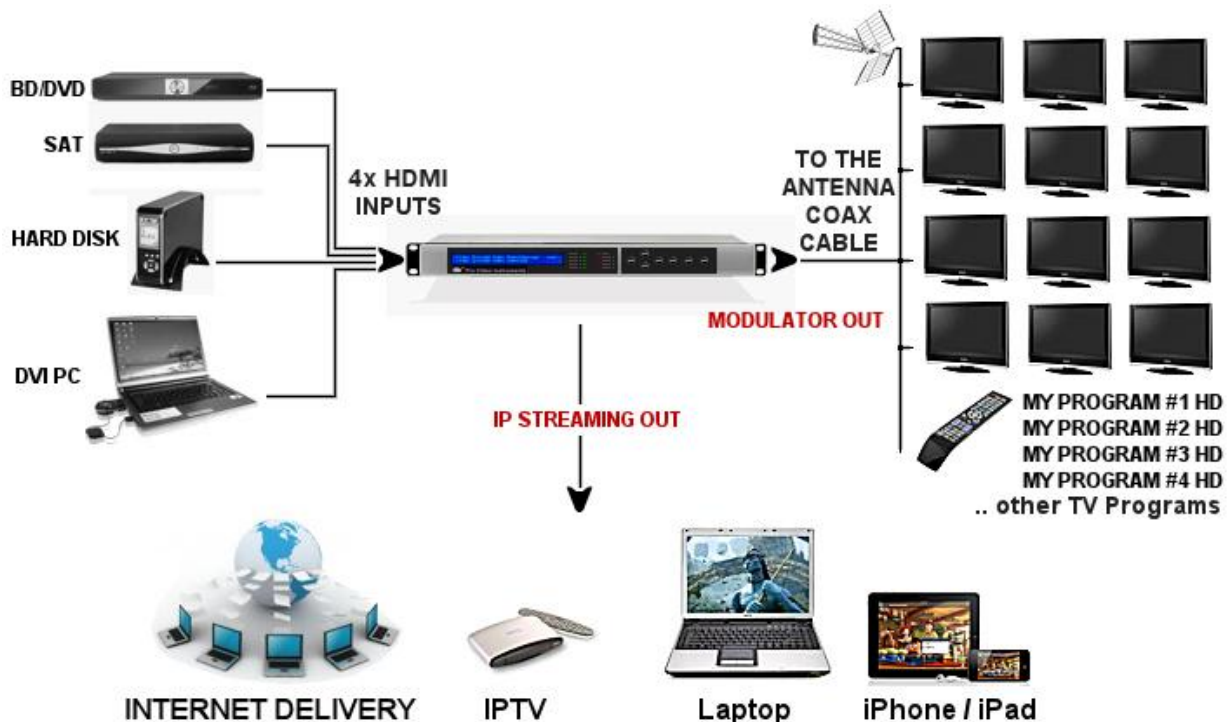


**Convert Four HD Videos to one DVB-T frequency and distribute to any DVB-T TV besides the existing TV programs**

Connect any DVD or BlueRay disk players, USB Pens and Hard Disk Media players, Satellite Terrestrial Cable Set Top Boxes, DVI or HDMI output from personal computers or other devices, Camera systems, Home Control systems, Home Domotics, etc.

Inject the DVB-T output frequency to any existing antenna coax distribution system, mixing with the existing TV channels, then re-scan all the DVB-T TVs in each room to automatically find and add new video programs.

## 4x HDMI to DVB-T & IP Streaming distribution

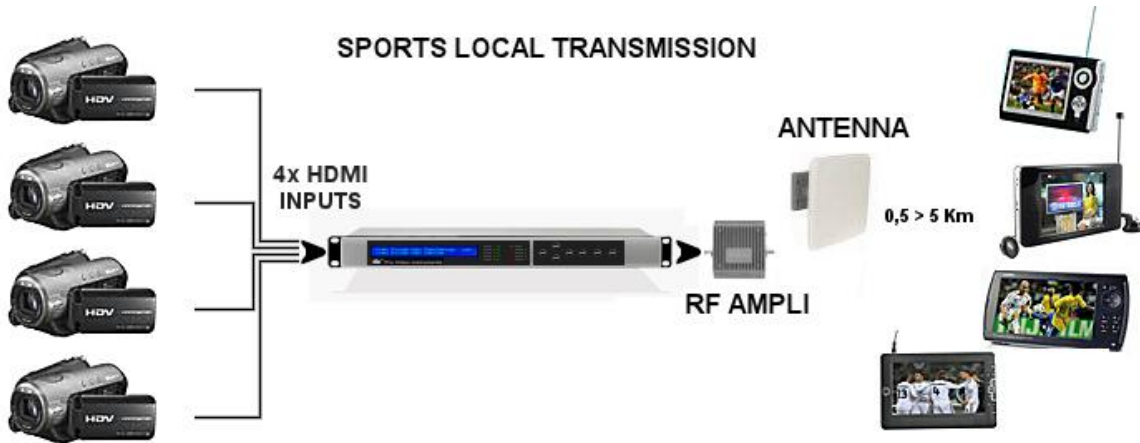


**4x HDMI HD Audio-Video to both DVB-T TVs and IP Streaming devices**

As application example #1, plus delivery over the existing IP network and WIFI to any IP player, including I-Pads, I-Phones, Laptops, etc.

# Typical Configurations

## 4x HDMI to ON-AIR DVB-T distribution



**ON-AIR transmission of 4x HDMI HD Videos to local and remote portable and fixed DVB-T television**

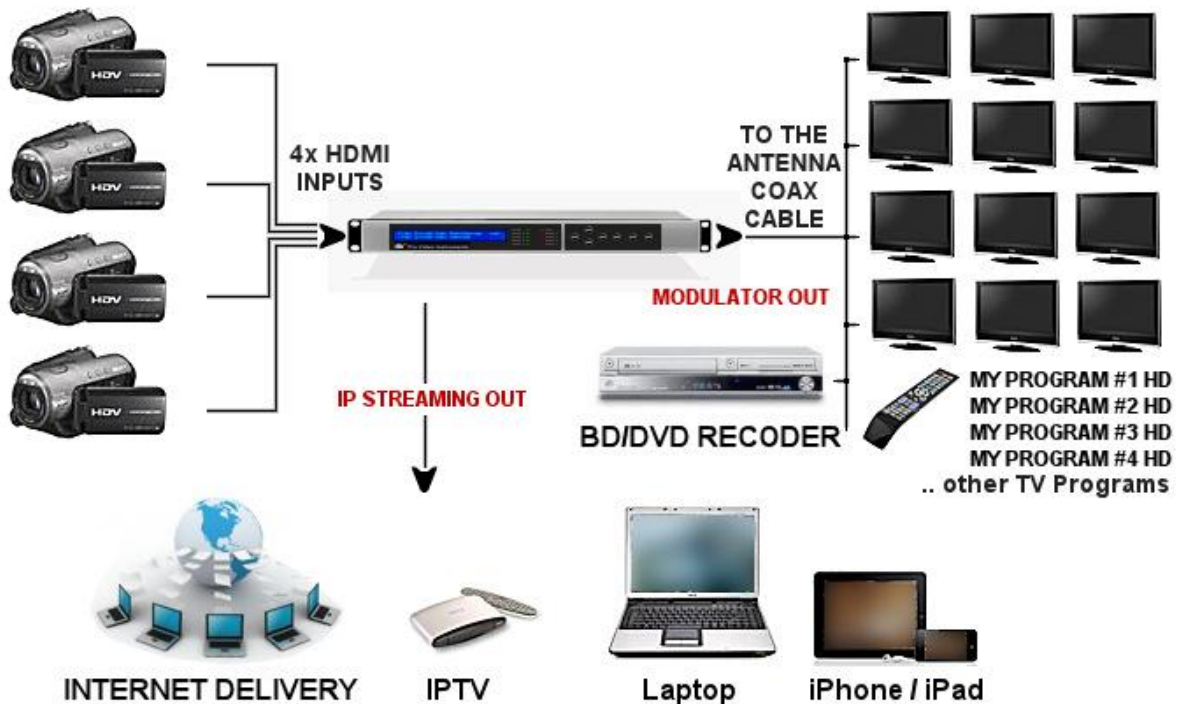
This example represents the ideal solution for sport and info channels transmission, inside sport stadiums.

It can be used for HD On-Board Camera broadcasting systems on sport competitions .

It is also ideal to distribute wireless TV inside buildings, shops, commercial centers, schools and campuses, where cables are not available.

As a turn-key broadcasting solution for churches and communities, to both on-air and Internet.

## 4x HDMI to DVB-T & IP with Live Recording to Disk – E-Learning solution



**Record 4x LIVE HD cameras to any standard DVB-T DVD/BlueRay disk or Hard Disk recorder**

As a Video-recording solution for e-learning purposes, with the ability to distribute the live HD contents to classes, universities, training rooms, Internet, supervisors, distance consultants.

This example is also suitable for school lesson HD broadcasting/webcasting and replay applications

# Technical Specifications

## Audio/Video Input

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- 4x HDMI 1.3 HD/SD Digital Video Input, supporting HD video resolutions 1080 & 720
  - Audio from the same HDMI cable with the ability to compress stereo sound and surround multi-channel
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## ASI

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### Transport Stream Input

- 1x ASI transport stream (BNC), supporting up to 210 Megabit/s rates each, MPTS/SPTS
- Operates as cascading input to merge multiple encoded programs from other units, and use only one frequency out from the final unit ( max total DVB-T rate is 31.5 megabit/s when used in 8 MHz mode / max parameters. If exceed, must use RF outputs from more Units (to allow the required bandwidth).
- Normally, ASI is not used on most applications.

### Transport Stream Output

- 1x ASI transport stream (BNC), supporting up to 210 Megabit/s each, MPTS/SPTS
  - Output the mux of 4 encoded programs, including the generated DVB PSI complete descriptor tables.
  - Normally, ASI is not used on most applications.
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## IP Streaming Out

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- 1x RJ45 Copper cable connector, supporting 10/100 Base-T speeds, auto-sensing
  - IP streaming out can be activated simultaneously to the DVB-T Radio Frequency output
  - IP streaming supports Unicast connections up to the 100 Base-T speed limit
  - IP Streaming supports multicast to unlimited IP players/decoders
  - 1x MPTS stream is generated
  - Full support for IGMP signaling
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## Control

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### Terminal port

- Needed for core settings only via the provided administrator terminal pod
- Set parameters are saved in non-volatile memory, and there is no need to reset the parameters following a potential black-out

### NMS Remote Control

- Full featured NMS Network Management Software ( free included ) allows complete remote control and monitoring of unlimited units via common IP networks and internet.

### Display & Keyboard

- Full unit control via local display and keyboard without the need of a pc

## RF Output

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### RF Output

- 1x BNC-Type connector, 75 Ohm

### DVB-T Modulator

- Standard DVB ET300429
  - Frequency range:  
VHF 177.5-226.5 MHz  
UHF 474 – 858 MHz
  - RF Out Level: Adjustable from 91dBuV to 61dBuV
  - Impedance : 75 Ohm ( 50 opt. )
  - MER: Professional-Grade >45 dB
  - Spectrum Shoulders: 55 dB for excellent adjacent-channel operations
  - Out Filter: -70 dB of Harmonic and spurious suppression
  - DVB-T modulations: QPSK, 16QAM, 64QAM
  - FFT: 2K / 8K modes
  - Guard Intervals:  
1/4, 1/8, 1/16, 1/32
  - Code Rates:  
1/2, 2/3, 3/4, 5/6, 7/8
  - 7/8 Mhz Channel Bandwidth
  - MFN Mode
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## Compliance

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CE marked in accordance with EU Low Voltage and EMC Directives

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### EMC Compliance

EN55022, EN61000-3-210, EN61000-3-310, EN55024, CISPR22, FCC CFR47 Part 15B Class A

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### Safety Compliance

EN60950-1, IEC60950-1, UL60950-1

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## Physical and Power

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### Dimensions (W x D x H)

482mm x 463mm x 44.5mm

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### Input Voltage

Autorange AC 110V±10%, 50/60Hz or AC 220V±10%, 50/60Hz – 26 Watts

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### Cooling

Selectable by user Forced / Natural

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## Environmental Conditions

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### Operating Temperature

-10°C to +45°C (14° to 113°F) Natural Cooling

-0°C to +60°C (14° to 140°F) Forced Cooling activated

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### Storage Temperature

-20°C to +70°C (4° to 158°F)

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### Relative Humidity

5 to 95%

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# Technical Specifications – Operational Specs

## Video Encoder

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### Performance

- Hierarchical Multi-look-ahead processing allows Full-Broadcast Quality at lower bitrates
- 3 Megabits Min for 1080i / 720p Full HD H264 AVC HP@L4.0
- 5 Megabit/channel Typ Setting.

### Video Encoding

- MPEG-4 AVC H.264 High Profile Level 4.0 Encoding
- 0.3 Mbps to 20 Mbps
- Hierarchical motion estimation
- VBR Statistical Multiplexing
- Encoding Delay <500 Msec
- Programmable GOP

### HD Resolution

- Auto Resolution Mode  
Encoding resolution of each channel follows the current HDMI source resolution
- 1080 x 1920i 25
- 1080 x 1920i 29.97
- 720 x 1280p 50
- 720 x 1280p 59.94

### Local SI Injection

- Service Name/Provider
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## Audio Encoder

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### Audio Encoding

- Standard MPEG-1 Layer II audio encoding, rates from 32 kbps to 384 kbps.
  - Mpeg-2 AAC ( OPTION )
  - Mpeg-4 AAC ( OPTION )
  - Stereo compression mode, as standard and support for surround multi-channel audio
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## How to Order

PN.	Description	PcsBox	Notes
<b>E7934TX</b>	<b>4x HDMI to DVB-T + IPTV + ASI Converter</b>	<b>1</b>	
<b>Different RF Output Versions</b>			
E7934CX	4x HDMI to DVB-C (a/b/c) + IPTV + ASI converter	1	
E7934SX	4x HDMI to DVB-S + IPTV + ASI converter	1	
E7934S2	4x HDMI to DVB-S2 + IPTV + ASI converter	1	
E7934AX	4x HDMI to ATSC + IPTV + ASI converter	1	
<b>IP Streaming – only Output Version ( No RF output )</b>			
E7934X	4x HDMI to IPTV MPTS + ASI converter	1	
<b>OEM No Brand Version</b>			
E7934T	Same Part Number without the final X letter	1	




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