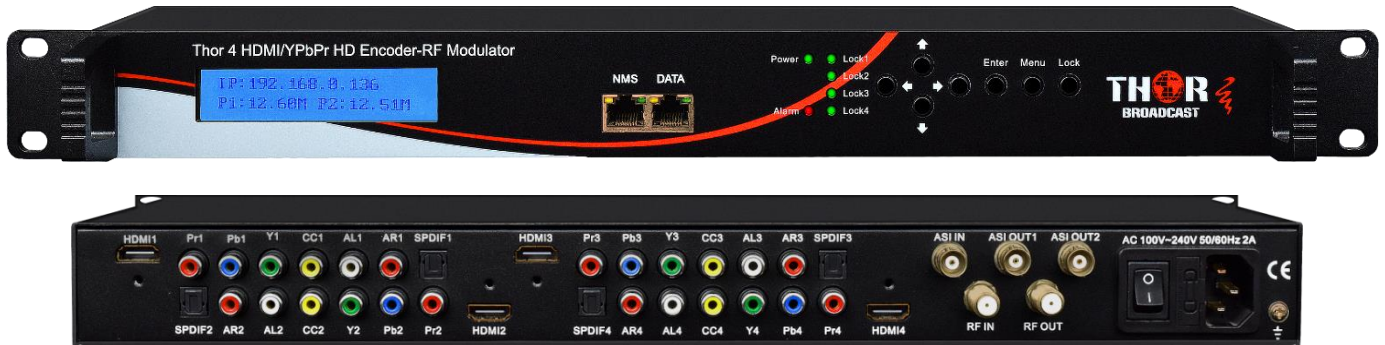# Data Sheet : H-4ADHD-QAM-IPLL

4 HDMI & Component HD to COAX and IPTV HD 480i/720p/1080i/1080p CC Modulator

4 Video Audio HDMI /YPbPr /CVBS inputs to - QAM "Cable" DVB-C RF output HDCP, Low Latency, up to 1080p, IPTV, ASI PN H-4ADHD-QAM-IP-LL

4 HDMI & Component HD to COAX, HD 480i / 720p /1080i / 1080p Modulator and IPTV Encoder Streamer

Low Latency, HDCP Compliant HDMI, MPEG2 and H.264 Video Encoding, Dolby AC3 Audio Encoding

QAM, ATSC, DVB-T, ISDB-T Modulation

PN: H-4ADHD-QAM-IPLL

 The **H-4ADHD-XXX-IPLL** modulator family from Thor broadcast is designed to handle even more applications than any other 4 channel chassis system that has come before. This **HDMI to COAX Modulator** has all the previous award winning features found in Thor Broadcast Modulators'; as well as, several new additional functions for added applications and flexibility. Our **HDMI to COAX Converter** provides 5 full **RF** carrier outputs for generating channels from content ingested through the ASI input. Encoding in either MPEG-2 or H.264 is provided for 4 crystal clear video streams up to 1080p60 each.

Bitrate is fully adjustable from 1.5 - 19 Mbps, and a variety of audio codecs are available. Standard audio encoding in MPEG-2 AAC and MPEG-4 AAC are provided; as well as, a licensed Dolby AC/3 audio codec. Audio sources can be selected from either embedded HDMI or Analog AV RCA ports. For Surround Sound, digital audio inputs can be set to "pass through" mode to preserve 5.1 and 7.1 audio that is encoded already in Dolby compatible format. Two mirrored ASI outputs are provided for broadcasters for added flexiblity in distributing the content generated by the 4 encoders.

This **HDMI to COAX Splitter** is an ideal solution for Professional Stadiums and Live Events. Used in more Collegiate stadiums for sports and distribution than any other model.

Programs input via ASI can also be multiplexed and remapped to the ASI output, adding yet another function to the unit as an ASI multiplexer. IPTV is not neglected in any way. All four encoded programs can be mapped to unique IP address outputs and ports in either **UDP** or **RTP** format. The IP output can be configured to strip null packets to reduce network bandwidth or preserve the constant bit rate (CBR) packet stuffing normally preferred by television systems. All four channels can be independently configured for either multicast or unicast outputs. Closed captioning is supported on a dedicated analog 608 CC port with RCA connector, an industry standard for line 21 captioning systems. Any 720 or 1080 line standard video signal in either HDMI or Component YPbPr format can be used for each of the four channels. This box also supports 480i for older TVs over RG6 RF coxial cables. Just like all other professional Thor modulator chassis, this system can be configured with firmware for either **QAM**, **DVB-C**, **DVB-T**, or **ATSC** channel format output.
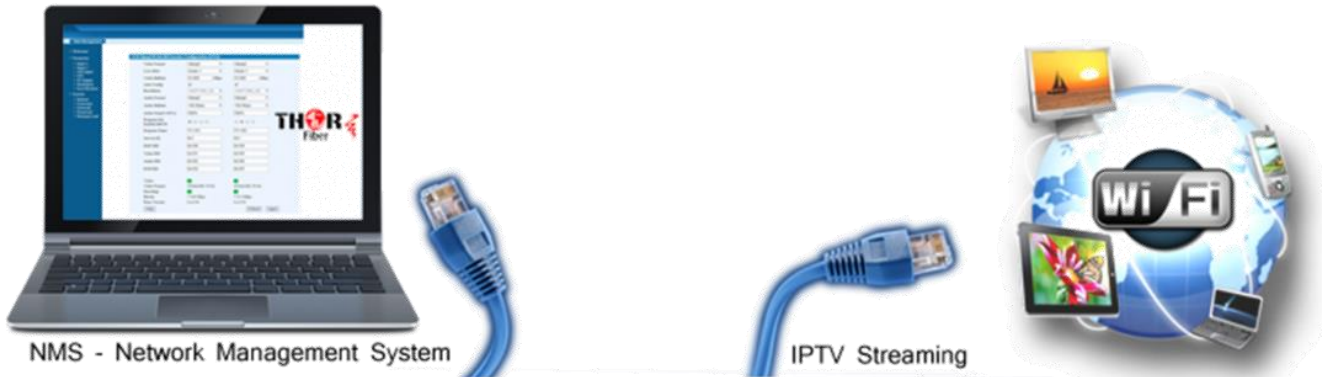
Features:

- Broadcast over existing Coaxial Cabling to an unlimited number of Televisions with FULL HD
- Perfect for Professional Stadiums and Arena's
- #1 in Live Sports and Entertainment
- Broadcast Live HDMI & YPbPr Video as Cable TV & IPTV Channels.
- Licensed HDMI inputs - works with any source like DVD, Blu-Ray, or any STB
- Convert HDMI & Component YPbPr HD Video to HDTV Channels
- Any 1-4 HDMI & YPbPr Inputs up to 720p / 1080i / 1080p
- Licensed HDMI inputs - works with any source like DVD, Blu-Ray, or any STB
- 4 HDMI Cables FREE
- Support DD AC3 (2.0 / 5.1 / 7.1) passthrough (for HDMI interface only)
- Support CC (Closed Caption) EIA608 (from CVBS input)
- 1-4 CATV RF Output up to 4 Adjacent channels
- QAM-256/64, DVB-T & ATSC formats available
- Fully IP Control and Network Management through browser
- Front Panel LCD local control
- IPTV Output Unicast or Multicast IGMP UDP, RTP / RTSP
- ASI Output multiplexer with cherry picking
- Low Latency available 300/500/800ms delay via different modes - IP will always be closer to 800ms due to the decoding (these values are end to end, not just the encoding speed)
- Dolby AC3 or MPEG1/2 Audio Encoding
- MPEG2 or MPEG4 H.264 Video Encoding
- Firmware for ATSC, DVB-T, DVB-S2 Available
- VCT (Virtual Channel Table) support for DVB-C and ATSC
- LCN (Logical Channel Number) support

Specifications:

Input	4 HDMI & 4 YPbPr up to 1080P60 , 4 CVBS up to 480I
Supported Resolutions	1280x720P 60 / 59.94 / 50 Hz 1920x1080I 60 / 59.94 / 50 Hz 1920x1080P 60 / 59.94 / 50 Hz CVBS Input Supports 480I only
Video Codecs	**MPEG-2 HD :** 1.5-19.5 Mbps **H.264 HD** : 0.8-19.5 Mbps
Audio Codecs	**MPEG-1 Layer II Encoding** **MPEG-2 AAC Encoding** **MPEG-4 AAC Encoding** **AC3 Dolby Encoding** **also:** **Support DD AC3 (2.0/5.1/7.1) passthrough for HDMI interface only**
Audio Sample Rate	48 kHz
Audio Bit Rates	64 kbps, 96 kbps, 128 kbps, 192 kbps, 256 kbps, 320 kbps
Modulation Standard	QAM - J.83A, J.83B, J.83C. **Firmware for ATSC or DVB-T ISDBT available**
RF Frequency Range	30-960 MHz 1 KHz Step
RF Power Level	5 - 35 dBmV Adjustable
DVB-ASI Output	BNC Connector: 1-60 Mbps MUXED MPTS
DVB-ASI Input	BNC Connector: 1-120 Mbps Programs Selected by PID Programs Muxed to all Outputs
IPTV Output	MPEG-TS MPTS over UDP, RTP/RTSP Unicas, and Multicast Supported 4 separate SPTS's 1 Muxed MPTS
Cables Included Closed Captioning	1 to 4 HDMI Cables & Power Cord CC 608 via Analog Input
Power Input	100-240 VAC Auto Switching ~ 20 W
Dimensions	19x17x3 19"Rack mountable 1U high
Weight	9 Pounds
Operating Temperature	32-110 F
	All Specifications Subject to Change Without Notice

Drawing:

NMS - Network Management System

IPTV Streaming

Wi Fi

FRONT

Thor 4 HDMI/YPbPr HD Encoder-RF Modulator

IP:192.168.0.136
P1:12.60M P2:12.51M

NMS   DATA

Power   Lock1
        Lock2
Alarm   Lock3
        Lock4

Enter Menu Lock

THOR BROADCAST

BACK

HDMI1 Pr1 Pb1 Y1 CC1 AL1 AR1 SPDIF1   HDMI3 Pr3 Pb3 Y3 CC3 AL3 AR3 SPDIF3   ASI IN ASI OUT1 ASI OUT2   AC 100V~240V 50/60Hz 2A

SPDIF2 AR2 AL2 CC2 Y2 Pb2 Pr2 HDMI2   SPDIF4 AR4 AL4 CC4 Y4 Pb4 Pr4 HDMI4   RF IN RF OUT

RF OUTPUT

Full HD 1080p

OR

OR

+

RF OUTPUT

CUSTOM TV CHANNEL #1

QAM
ATSC
DVB T
ISDB-T
DVB C

CUSTOM TV CHANNEL #2

CUSTOM TV CHANNEL #3

4 X HDMI INPUT   4 X COMPONENT VIDEO + AUDIO INPUT   4 X COMPOSITE VIDEO + AUDIO INPUT   4 X CLOSED CAPTIONING INPUT
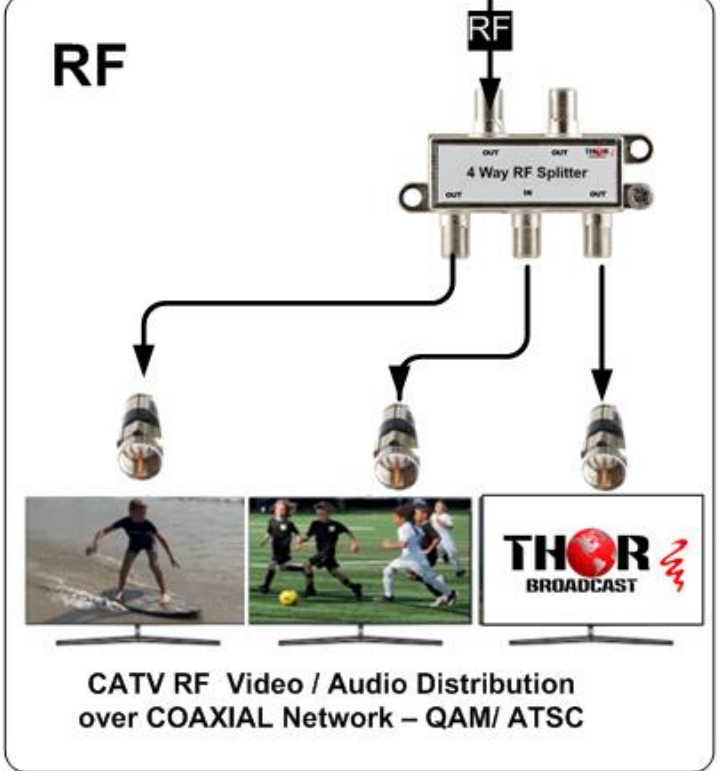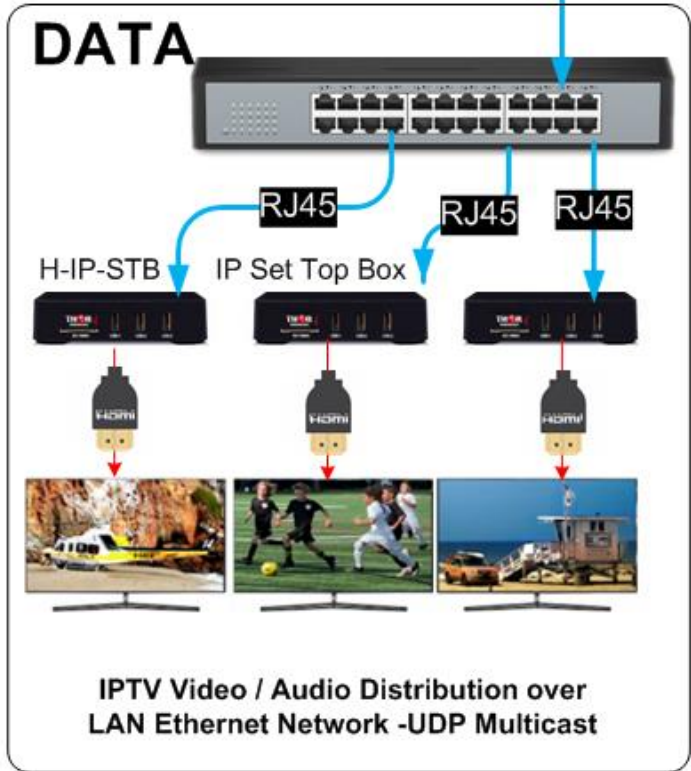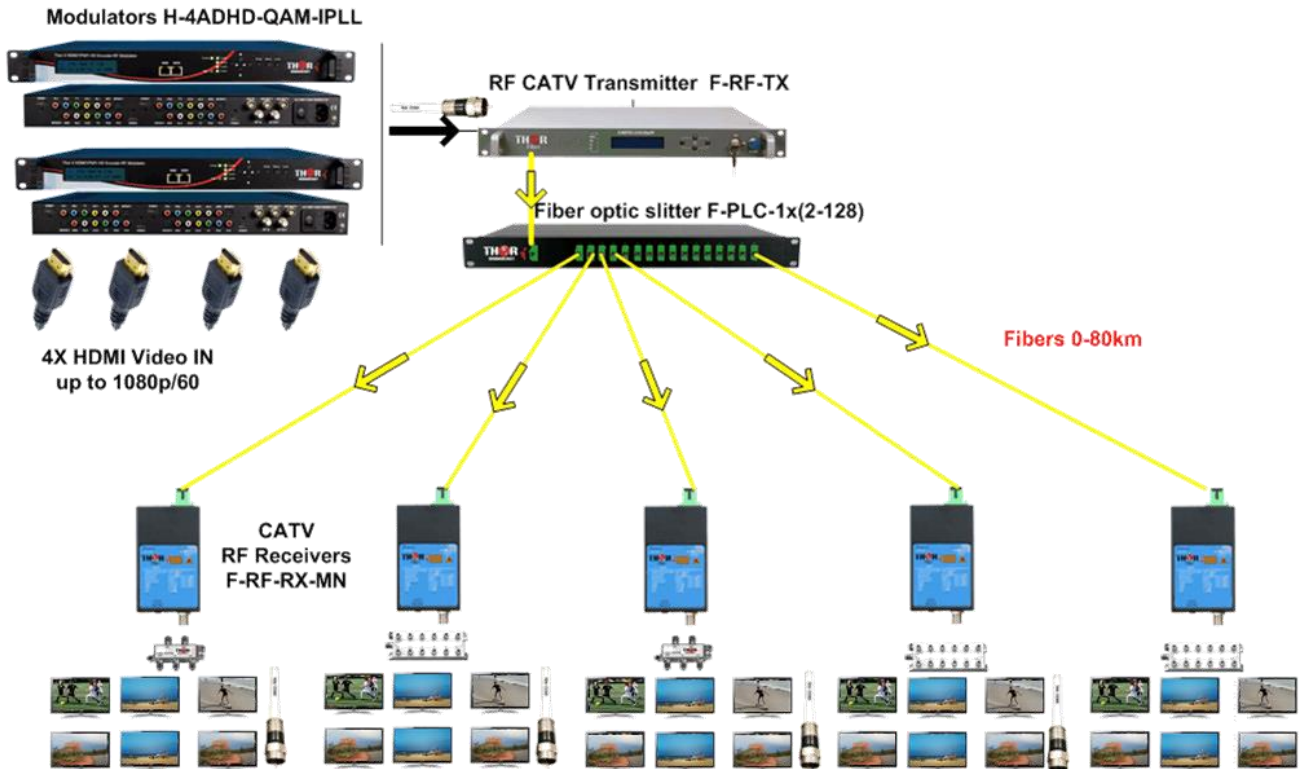
CC

CUSTOM TV CHANNEL #4

CATV RF over coax distribution and IPTV distribution over the LAN internet network using the integrated Thor H-4ADHD-QAM-IPLL – QAM /ATSC Modulator and IP Encoder

DATA

RJ45

H-IP-STB   IP Set Top Box

RJ45   **RJ45**   **RJ45**

**IPTV Video / Audio Distribution over
LAN Ethernet Network -UDP Multicast**

RF

RF

4 Way RF Splitter

**CATV RF Video / Audio Distribution
over COAXIAL Network – QAM/ ATSC**

Hybrid RF CATV electrical and optical distribution application drawing

Model Selection:

Additional Model Selection:	We can program our modulators to any available RF modulation format: QAM DVB-C, ATSC, DVB-T, ISDB-T Changes in format do not affect IPTV or ASI Output
H-4ADHD-QAM-IPLL	QAM "Cable" DVB-C RF output
H-4ADHD-ATSC-IPLL	ATSC " Off Air " RF output
H-4ADHD-DVBT-IPLL	DVB-T RF output
H-4ADHD-ISDBT-IPLL	ISDB-T RF output