THOR

CATALOG

Complete Broadcast Solutions
IPTV Encoders & Decoders
ATSC / QAM Modulators
Fiber Optic Transport

Thor Broadcast

www.thorbroadcast.com
Email Sales: sales@thorfiber.com
Phone: 1(800) 521-8467

Company Background

Thor Broadcast was founded in 2006 by a group of Broadcast Engineers with a background in fiber optic transport and electrical engineering. Thor is focused on bringing the worlds best components and optic modules together at a state of the art engineering facility in Southern California. Thor is a full service OEM equipment manufacturing company with full design, development, and custom solution capability. Thor is focused on providing commercial grade turn key video broadcasting systems as a fully integrated solution. Thor can provide all cables, adapters, hardware, and enclosures to fully support your installation. Every unit sold is backed by an industry leading 5 year warranty; with 24/7 remote support available for the life of the product.

BROADCAST VIDEO ENCODING SYSTEMS

Video Encoding TV Modulation
CREATE Your Own CATV QAM Cable or off air ATSC Channel

- HD MPEG2 and H.264 Encoder & Modulator
- Encoding Latency 70ms
- Up to 4X HD-SDI Inputs
- Up to 4X HDMI Inputs
- 1-4 CATV RF QAM output
- QAM or ATSC (8VSB) or DVB-T
- IPTV Output
- ASI output
- ASI Input for TS multiplexing

NMS - Network Management System

IPTV Streaming

FRONT

BACK

Full HD 1080p

OR

OR

+

RF OUTPUT

CUSTOM TV CHANNEL #1

QAM
ATSC
DVB T
ISDB-T
DVB C
CC

CUSTOM TV CHANNEL #2

CUSTOM TV CHANNEL #3

CUSTOM TV CHANNEL #4

4 X HDMI INPUT

4 X COMPONENT VIDEO + AUDIO INPUT

4 X COMPOSITE VIDEO + AUDIO INPUT

4 X CLOSED CAPTIONING INPUT

Applications

Hotels
Hospitality
Digital Signage
Education
Worship
Concert
Halls
Stadiums
Arenas
Malls
Live Events
Airports
Campus
Surveillance
Corporate

THOR

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How to choose the right QAM-IP chassis for you in 4 easy steps

1- Choose any INPUT Type

OR
AND

OR
AND

HDMI

HD/SD-SDI

YPbPr

2- Choose Modulation

OR

OR

CABLE QAM

ATSC—(8VSB)

DVB-T

3- Choose how many Channels

| 1 CH |
| 2 CH |
| 4/8/16/24 CH |

4- Choose how many Channels

STANDARD LATENCY 800ms

LOW LATENCY 70-250ms

LOW LATENCY 70MS ENCODER MODULATOR CC

Ultra Fast Source to Display Digital Channel Modulation
ALL in ONE—HDMI / YPbPr to CATV RF/IPTV/ASI
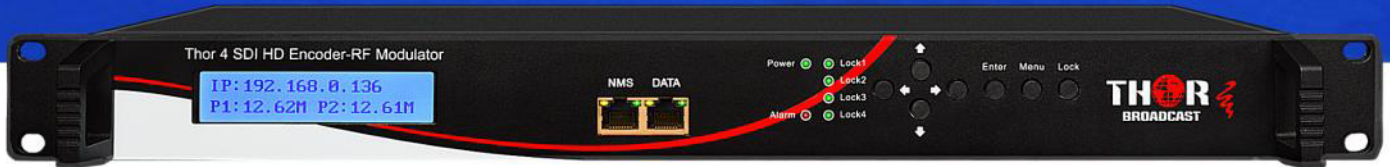Low Latency 4CH Encoder Modulator with separate analog CC input

NMS - Network Management System

IPTV Streaming

Wi Fi

FRONT

Thor 4 HDMI/YPbPr HD Encoder-RF Modulator

IP:192.168.0.136
P1:12.68M P2:12.51M

NMS   DATA

Power   Lock1
        Lock2
        Lock3
Alarm   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

CE

RF OUTPUT

Full HD 1080p

OR

OR

+

QAM
ATSC
DVB T
ISDB-T
DVB C

CC

CUSTOM TV CHANNEL #1
CUSTOM TV CHANNEL #2
CUSTOM TV CHANNEL #3
CUSTOM TV CHANNEL #4

4 X HDMI INPUT

4 X COMPONENT VIDEO + AUDIO INPUT

4 X COMPOSITE VIDEO + AUDIO INPUT

4 X CLOSED CAPTIONING INPUT

Blu-ray 3D

DVD VIDEO

- **4 HDMI INPUT**
- **4 YPbPr (Component) INPUT**
- **4CVBS (Composite) INPUT**
- **4 CC (closed caption) INPUT**
- **4 Analog Audio inputs INPUT**
- **ASI INPUT**
- **5 RF CATV QAM OUPUT**
- **IP OUTPUT UDP /RTP Unicast or Multicast**
- **ASI OUPUT**

- **MPEG2 or H.264 Video Encoding**
- **MPEG1, MPEG2 or Dolby AC3 Audio Encoding**
- **Ultra Low Latency 70—250ms**
- **QAM or ATSC or DVB-T or - (firmware dependent)**
- **NMS IP control**
- **LCD Display front panel control**
- **19" Rack mountable**
- **HDCP Compliant**
- **IPTV**
- **Remote Access and control**
- **Up to 1080p**

HDMI ((HDCP)) USB H.264 MPEG-4/AVC Full HD 1080

ANY VIDEO SOURCE TO CATV RF, IP, ASI - QAM / ATSC / DVB-T
1-4 HD MPEG2/H.264 ENCODER + RF DIGITAL MODULATOR

Thor 4 SDI HD Encoder-RF Modulator

IP:192.168.0.136
P1:12.62M P2:12.61M

NMS DATA

Power Lock1
Lock2
Lock3
Alarm Lock4

Enter Menu Lock

THOR
BROADCAST

- 1 - 4 HD VIDEO over Coax CATV RF distribution QAM or ATSC or DVB-T or S2

- 1 - 4 HD Video IPTV Encoder - MPEG2 or H.264 (IP Ethernet Output)

- 1 - 4 HD Video Contribution ASI Encoder MPEG2 or H.264 (ASI Output)

- SDI to RF

- SDI to IP

- ASI Multiplexer

- ASI cherry picker

- ASI to IP converter

SDI IN

COAX RF OUT

1 SD/HD-SDI INPUT
H-1SDI-XX-IPLL

2 SD/HD-SDI INPUT
H-2SDI-XX-IPLL

4 SD/HD-SDI INPUT
H-4SDI-XX-IPLL

1 SD/HD-SDI +1 HDMI
H-1SDI-1HDMI –XX-IPLL

1 SD/HD-SDI +1 HDMI
H-1SDI-1HDMI –XX-IPLL

12 SDI INPUT
H-12-SDI-XX-IPLL

Conversions: SDI to RF, SDI to IP, SDI to ASI

- SDI Support: 720p/1080i/1080p60
- Create any 1-4 CATV RF TV channel - 45 - 1000Mhz
- 4 Programs on 1 CATV channel available
- RF Output: QAM-256/64 or Firmware for ATSC,
- DVB-T, DVB-S2 Available
- IPTV Output Unicast or Multicast IGMP UDP

- ASI TS Input for internal Ts multiplexing
- ASI Output with multiplexer cherry picking program
- Low Latency available □ 70-120ms available
- Dolby AC3 Audio available (AC3 model)
- MPEG2 Video or MPEG4 H.264 Encoding
- Front Panel LCD local control

IPTV OUT

Full HD 1080

Any Input
HDTV
Content
Source

Clear QAM Out Coax Splitter Coax Amp Expandable

THOR
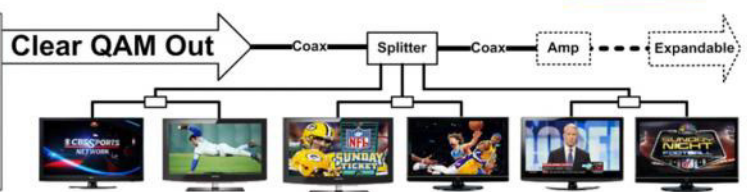
CREATE YOUR OWN HD RF CHANNELS

Encode, Modulate, Mux, and Distribution

HDMI OPTIONS

ALL in 1
4 HDMI INPUT
4 YPbPr (Component)
4 CVBS (Composite)
4 CC (closed captioning)

HDMI® HIGH-DEFINITION MULTIMEDIA INTERFACE — **((HDCP))** — **USB** — **H.264** MPEG-4/AVC — **1080P Full HD**

1 HDMI INPUT
H-HDMI-XXIPLL

2 HDMI INPUT
H-2HDMI-XX-IPLL

4 HDMI INPUT
H-4HDMI-XX-IPLL

2 HDMI + 2 YPbPr
H-2HDMI-2YPBPR –XX-IPLL

4 RGB– (4 YPbPr)
H-4YPBPR -QAM-IPLL

12 HDMI INPUT
H-12-HDMI-XX-IPLL

Live HD Video → MPEG-2/H.264 Encoder
Live HD Video → MPEG-2/H.264 Encoder
Live HD Video → MPEG-2/H.264 Encoder
Live HD Video → MPEG-2/H.264 Encoder
ASI Programs → ASI Transport Stream IC

Program TS Multiplexer → RF Modulator / RF Modulator / RF Modulator / RF Modulator

ASI 2x BNC Out
RF Out Type-F
RF

IPTV Server & CPU Management System — LCD Keypad

RJ-45 IPTV
RJ-45 NMS
IPTV
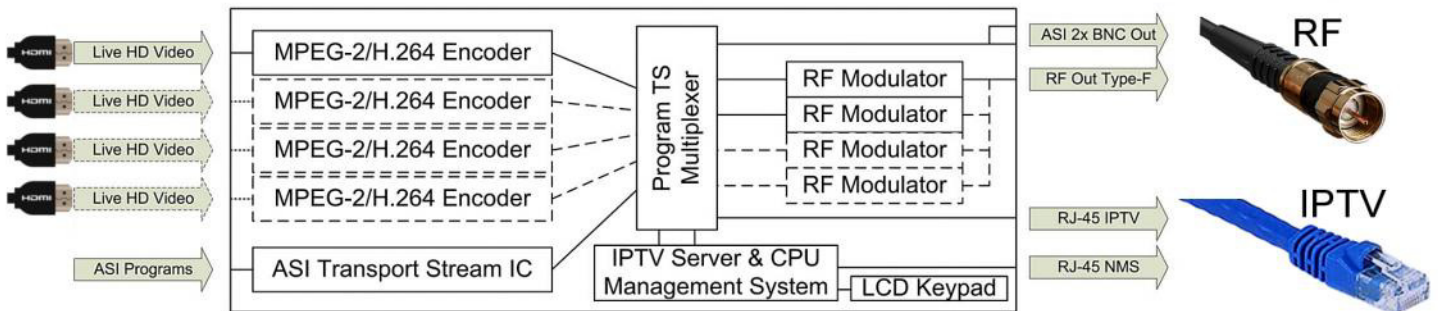
Conversions: HDMI to RF, HDMI to IP, HDMI to ASI
YPbPr to RF, YPbPr to IP, YPbPr to ASI

• Hot swappable - SDI Card, HDMI Card, or YPbPr Card.

• Secondary HDMI input will automatically switch If video on primary inputs fail to be detected on single channel and dual channel chassis only

• Supports real time HD encoding for both MPEG-2 or H.264 codec's with multiple audio formats including Dolby AC3

• Configured and monitored via any standard web browser with secure password protected login

• Easy tech support via web and phone

• Low Latency is the ideal solution for Live Sports, Concerts, Event Halls for real time encoding at 70ms

• HDCP Compliant - Works with any DVD player or any STB

THOR   www.thorbroadcast.com   •   sales@thorfiber.com   •   800-521-8467

HIGH CAPACITY MPEG2/H.264 IP Encoders & CATV RF MODULATORS - QAM/ATSC/DVB-T/ISDB-T

12/16 /24 HDMI to IP / ASI and CATV QAM / ATSC

12/16 /24 HDMI Inputs

MPEG-2 Out

H.264 Out

IP out

ASI Out

RF Output
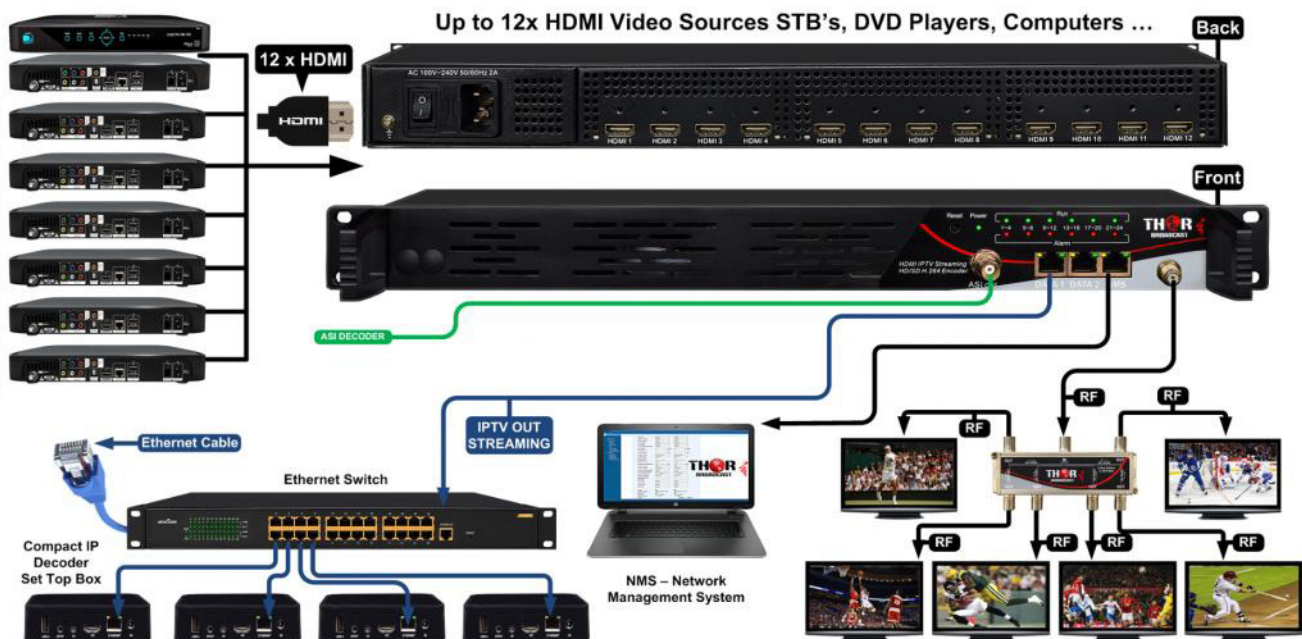
12/16 /24 SDI to IP / ASI and CATV QAM / ATSC
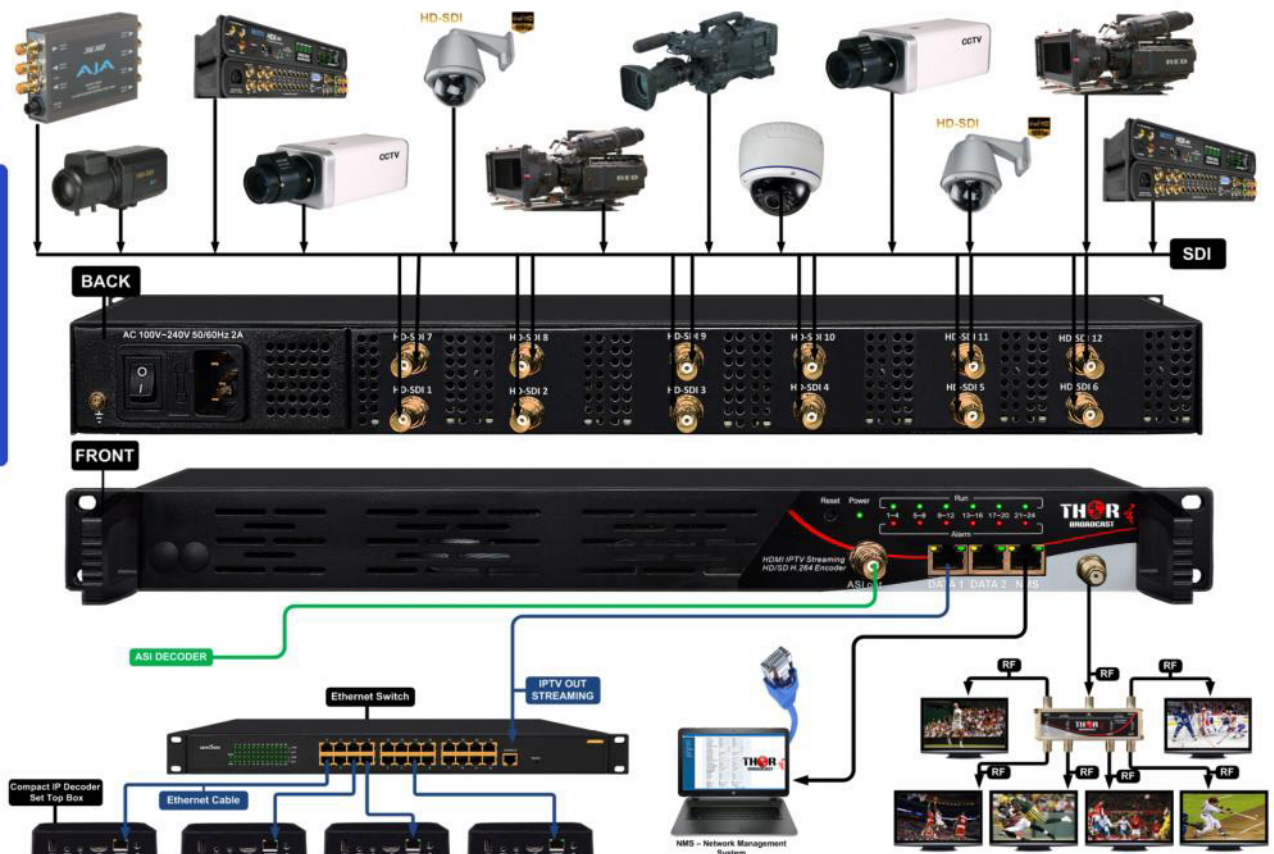
12/16 /24 SDI Inputs

608/708 CC

MPEG-2 Out

H.264 Out

IP out

ASI Out

RF Output

H-VQAM-SD
1 CHANNEL CVBS ENCODER HDTV QAM or ATSC MODULATOR

- 1x SD CVBS In
- 1x Digital TV Ch
- QAM or ATSC
- QAM or ATSC or DVB-T

1 Channel MPEG-2 encoding with full PSIP & EPG data generation with PID mapping for QAM or ATSC
Modulates standard definition (480i) digital TV channel in either Cable (QAM) or Free to Air (8VSB)
Digital TV channels do not degrade with coax distance or require RF level adjustments, true DTV

H-VQAM-HD
1 CHANNEL COMPACT HD HDMI, YPbPr, CVBS ENCODER HDTV MODULATOR

- 1x HDMI Input
- HDCP Compliant
- 1x Component
- 1x HDTV RF Channel
- QAM or ATSC or DVB-T

- 1 Channel MPEG-2 or H.264 encoding for broadcast video from HDMI or Component inputs up to 1080p60
- 1 Channel MPEG-2 encoding with full PSIP & EPG data generation with PID mapping for QAM or ATSC
- Uses same high quality encoding and modulating firmware found on the rack mount QAM-IP Chassis

Channel Number	Center Frequency MHz	Channel Number	Center Frequency MHz	Channel Number	Center Frequency MHz	Channel Number	Center Frequency MHz
2	57	38	309	79	555	120	771
3	63	39	315	80	561	121	777
4	69	40	321	81	567	122	783
5	79	41	327	82	573	123	789
6	85	42	333	83	579	124	795
95	93	43	339	84	585	125	801
96	99	44	345	85	591	126	807
97	105	45	351	86	597	127	813
98	111	46	357	87	603	128	819
99	117	47	363	88	609	129	825
14	123	48	369	89	615	130	831
15	129	49	375	90	621	131	837
16	135	50	381	91	627	132	843
17	141	51	387	92	633	133	849
18	147	52	393	93	639	134	855
19	153	53	399	94	645	135	861
20	159	54	405	95	651	136	867
21	165	55	411	96	657	137	873
22	171	56	417	97	663	138	879
7	177	57	423	98	669	139	885
8	183	58	429	99	675	140	891
9	189	59	435	100	681	141	897
10	195	60	441	101	687	142	903
11	201	61	447	102	693	143	909
12	207	62	453	103	699	144	915
13	213	63	459	104	705	145	921
23	219	64	465	105	711	146	927

Channel Number	Center Frequency MHz	Channel Number	Center Frequency MHz	Channel Number	Center Frequency MHz	Channel Number	Center Frequency MHz
7	177	57	423	98	669	139	885
8	183	58	429	99	675	140	891
9	189	59	435	100	681	141	897
10	195	60	441	101	687	142	903
11	201	61	447	102	693	143	909
12	207	62	453	103	699	144	915
13	213	63	459	104	705	145	921
23	219	64	465	105	711	146	927
24	225	65	471	106	717	147	933
25	231	66	477	107	723	148	939
26	237	67	483	108	729	149	945
27	243	68	489	109	735	150	951
28	249	69	495	110	741	151	957
29	255	70	501	111	747	152	963
30	261	71	507	112	753	153	969
31	267	72	513	113	759	154	975
32	273	73	519	114	765	155	981
33	279	74	525	115	771	156	987
34	285	75	531	116	777	157	993
35	291	76	537	117	783	158	999
36	297	77	543	118	789		

CATV QAM Channel 2-158 Center Frequency
Annex B, 6 MHz Channels 54 to 1002 MHz

Component Video+AUDIO INPUT

Front

Back

QAM
ATSC
DVBT
ISDBT
DVBC

COMPONENT VIDEO+AUDIO INPUT
HDMI INPUT
COMPOSITE VIDEO+AUDIO INPUT
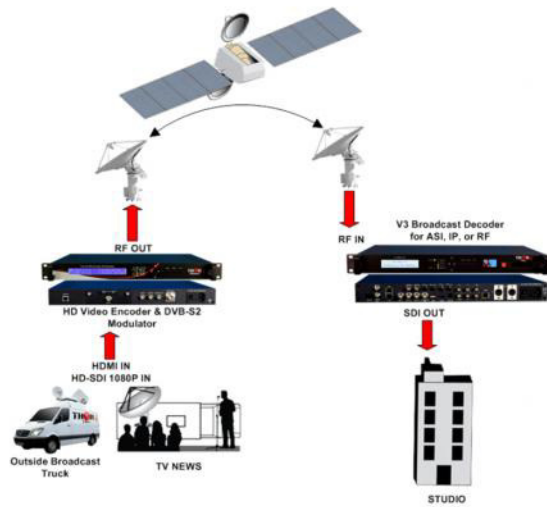USB FLASH DRIVE INPUT
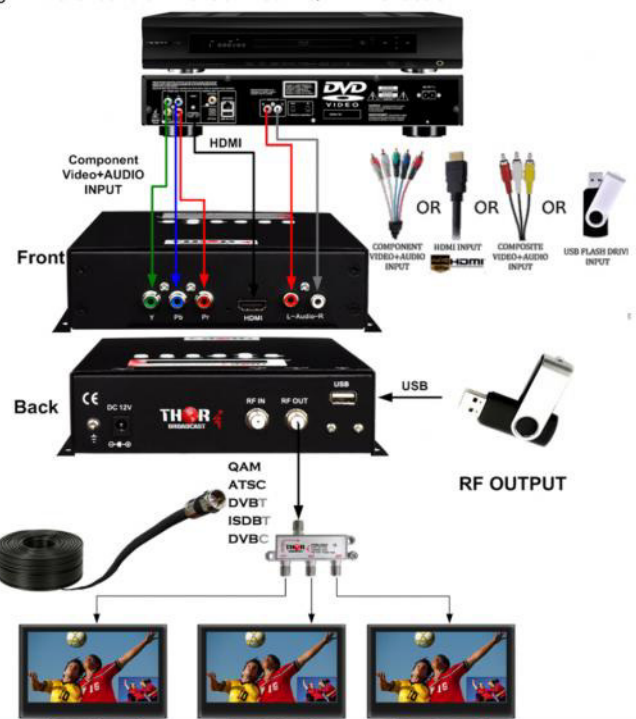
RF OUTPUT

DVB-S2 SATTELITE ENCODER MODULATORS

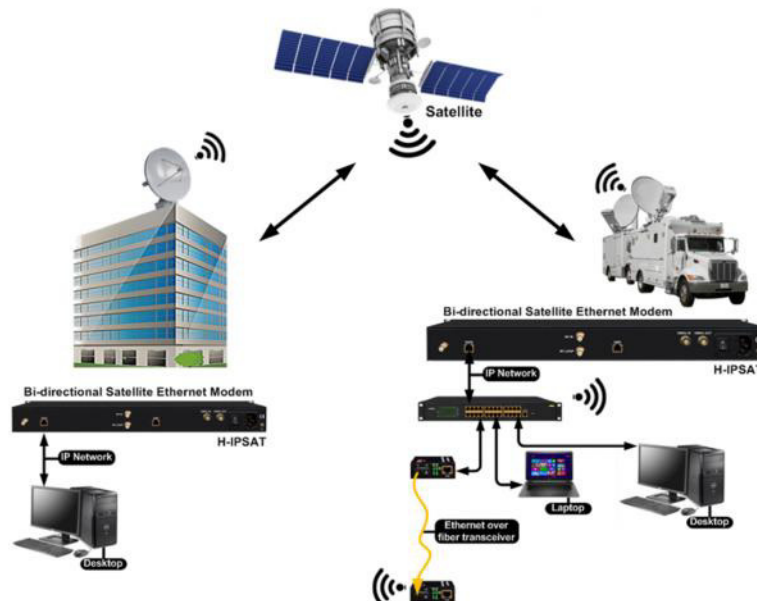## Any HD video format Input—RF Satellite L-band DVB-S2 Output

Live HD Video Encoder + Modulator

1SD/HD/3G SDI Input
DVBS/S2 RF Output
DVBS2X (optional)
L-band or IF Output
10Mhz Out
ASI IN
ASI OUT

1DVB-S/S2 RF Satellite IP Broadband Modem with TCP/IP Accelerator

10/100 Etherent
RJ45 Interface
DVB-S/S2 RF IN/OUT
TCP/IP Accelerator
45 Mbps Bandwidth

H-2HD-ENC:
2 CHANNEL HD-SDI CLOSED CAPTIONS & DOLBY AC/3

2x HD-SDI
MPEG-2
H.264
Dolby AC/3

SDI
SDI

- Encodes 2 Channels of HD video from HD-SDI provides all codec's & services required for US broadcasters
- Generates standard ASI and IP streams that are compatible with all US broadcasting systems
- Ideal as a contribution encoder for affiliates or as a secondary program encoder for local modulators
- Supports Closed Captioning 708 standard & automatic 608 down conversion from SDI ancillary data
- Offers support for the Dolby AC/3 audio codec that is required by many cable systems in the USA

H-4HD-ENC-AC3:
4 CHANNEL HD-SDI ENCODER WITH CC & AC/3

4x HD-SDI
MPEG-2
H.264
Dolby AC/3
608/708 CC
ASI

SDI
SDI
SDI
SDI

- Same features as the two channel model, just with twice the program encoding capacity in 1RU chassis
- Front alarm indicator with toggle switch for audible alarm to indicate when video lock is lost or TS errors
- Managed through web browser on dedicated network port with all settings also available on front LCD
- Independent encoding parameters for each video input that are fully configurable for codec & bitrates
- Supports HD MPEG-2 encoding with the Dolby AC/3 audio codec and support for 708 closed captions

USA BROADCASTING STANDARDS MPEG-2 ENCODER

Supports US Broadcasting special requirement for Dolby AC/3

H-4HD-ENH-AC3:
4 CHANNEL HDMI ENCODER WITH AC3 & CC (1.5)

4x HDMI
MPEG-2
H.264
Dolby AC/3

- Two or Four HDMI input hardware encoder for full HD program generation for US TV's and broadcasters
- Provides closed captioning support for HDMI sources that support CC, typically HDMI 1.5 or newer
- Combines all encoded programs on a single MPTS ASI output on mirrored BNC connectors
- Provides IP transport stream output as either MPTS or multiple SPTS UDP MPEG-TS IGMP streams
- Redundant hot stand by power supplies for unparalleled up time and broadcast system reliability

H-4HD-ENC-AC3:
2X HDMI 2X HD-SDI ENCODER WITH CC a AC/3

2x HDMI
2x HD-SDI
MPEG-2
H.264

- Combines 2 HDMI & 2 HD-SDI inputs for a total of 4 HD program encoders with full support for US TV's
- Provides support for MPEG-2 programs with 608 & 708 Caption support on HD-SDI and HDMI 1.5 up
- Managed through web browser on dedicated network port with all settings also available on front LCD
- Independent encoding parameters for each video input that are fully configurable for codec & bitrates
- Two independent 120-240 VAC power supplies in hot stand by mode with front panel indicators & alarm

HIGH CAPACITY H.264 ONLY ASI / IP ENCODERS

For Highest Quality H.264 Live Video Encoding

H-8HD-EMH:
8 HD ENCODER & MULTIPLEXER WITH 8 HDMI INPUTS

8 HDMI Inputs

MPEG-2 Out

H.264 Out

IP out

ASI Out

8 X HDMI

- Independent encoding configuration provided for each input with video adjustments available
- Internal ASI Multiplexer provided for adding additional programming to the transport stream output
- ASI input provides ability to multiplex additional programming onto the encoded transport stream outputs
- Output is provided via mirrored ASI ports on BNC terminals as well as IP UDP or RTP streams on Gigabit

H-8HD-EMH:
8 HD ENCODER & MULTIPLEXER WITH 8 HD-SDI INPUTS

8 HD-SDI Input

608/708 CC

MPEG-2 Out

H.264 Out

IP out

ASI Out

8 X HD/SD-SDI

- Highest capacity H.264 HD encoding available with 8 HD-SDI inputs that support up to 1080p 60
- Independent encoding configuration provided for each input with video adjustments available
- Internal ASI Multiplexer provided for adding additional programming to the transport stream output
- ASI input provides ability to multiplex additional programming onto the encoded transport stream outputs
- Output is provided via mirrored ASI ports on BNC terminals as well as IP UDP or RTP streams on Gigabit

H-MPEG2-H264-E:
CONTRIBUTION ENCODER WITH CC SUPPORT

HD-SDI Input

HDMI Input

608/708 CC

MPEG-2 Out

H.264 Out

IP out

- Designed for users who need support for closed captioning on many different input video types

- Ability to read 608 closed captioning line 21 data while encoding from different video sources

- Internal ASI Multiplexer provided for adding additional programming to the transport stream output

- Provides output on mirrored ASI terminals as well as IP streaming in both UDP and RTP protocols

- Accepts balanced or unbalanced analog audio as well as digital audio AES/EBU on XLR Breakout cables

H-MPEG2 - H264-2:
THOR 1SDI + 1HDMII HD ENCODER-MPEG2/H.264/AC3

HD-SDI Input

Multi Format

H.264 Codec

MPEG2

ASI Out

- Designed for transport of broadcast quality HD video for contribution where bandwidth is limited

- Provides inputs for HD-SDI, HDMI, Component, & and composite video with digital audio inputs

- Encodes any input to high level H.264 transport streams on ASI output & IP UDP or RTP streams

- Managed through internal web server system on separate dedicated NMS management port

MULTI CHANNEL ANALOG ENCODERS

HIGH DENSITY SD ENCODING FOR CVBS (Baseband Video) Input

4 X CVBS

CVBS

H-4AV-SDE
4 CHANNEL CVBS BASEBAND AV BROADCAST ENCODER / MODULATOR

• Accepts up to 4 / 8 /24 channels of analog baseband video and stereo audio on BNC terminals
• Encodes and multiplexes inputs to H.264 or MPEG2 transport streams on ASI and IP (UDP-TS) outputs
• Internal ASI multiplexer allows additional programming to be inserted to output on ASI input
• CATV RF output - QAM or ATSC or DVB-T or ISDB-T (optiona)

8 X CVBS

CVBS

H-8AV-SDE
8 CHANNEL CVBS BASEBAND AV BROADCAST ENCODER / MODULATOR

• Accepts up to 8 channels of analog baseband CVBS

24 X CVBS

CVBS

H-24AV-SDE
24 CHANNEL CVBS BASEBAND AV BROADCAST ENCODER / MODULATOR

• Accepts up to 24 channels of analog baseband CVBS

H-1ASI-IP-B
ASI to IP and IP to ASI GATEWAY

80 Mbps IP

1x ASI Input

1x ASI Output

Full Duplex TS

• Used to transport ASI over local area networks or carrier class metro link WANs or VPNs
• Highly reliable broadcast transport when used with carrier class network equipment & links
• Provides duplex bi directional transport in real time for any ASI serial stream up to 80 Mbps
• Configuration available for monitoring and alarm indicating through network management system

H-8ASI-IP
8 ASI to ETHERNET IP TRANSPORT NETWORK GATEWAY

80 Mbps IP

8x ASI Input

1X IP Output

Full Duplex TS

• Transport up to 4 ASI inputs as SPTS or MPTS program streams over Ethernet IP networks
• Managed & monitored remotely through Thor network management software web interface
• Sends all programs over IP network as a single multiplexed transport stream
• Can be configured to remove null packets for transport and reinsert on output for CBR
• Front panel display with LED indicators for input detect / lock on all four ASI inputs on back panel

MANAGED ASI PROCESSORS

H-ASI-DS3-B
DUPLEX -Bidirectional ASI TRANSPORT OVER 44Mbps DS3

44 Mbps DS3
1x ASI Input
1x ASI Output
Full Duplex TS

ASI IN   ASI OUT X 2   NMS – Network Management System   DS3 LINE   ASI IN   ASI OUT X 2   NMS – Network Management System

• Used to transport ASI over a 44 Mbps DS3 orT3 carrier class level 3 TDM network connection
• Highly reliable video transport for broadcast, almost as reliable as direct optical fiber connection
• Provides duplex bi directional transport in real time for any ASI serial stream up to 40 Mbps
• Configuration available for monitoring and alarm indicating through network management system

H-8ASI-MUX
ASI MULTIPLEXER - 8 INPUT 4 OUTPUT (2x2)

8x ASI Input
4x ASI Output
IP Managed
Dual Path Out

• Accept & parse up to 8 ASI inputs as SPTS or MPTS single program or multi program streams
• Managed & monitored remotely through Thor network management software web interface
• Process MPTS & cherry pick individual programs via PID & remap output PID table for EPG
• Provides two independent output pipes with individual program selection on mirrored outputs
• Front panel display with LED indicators for input detect / lock on all eight ASI inputs on back panel

H-ASI-AMP-1X8
1x8 ASI Distribution Amplifier

1 ASI Input

8x ASI Output

IP Managed

Dual Path In

ASI

- Accept & parse 1 ASI single or multi program inputs at up to 210 Mbps each
- Either ASI input can be routed to any of the ASI outputs for flexible matrix routing
- Remotely managed and monitored with Thor network management software and web interface
- Full function front key pad and LCD allows full local control without the use of a computer
- Outputs up to 16 relocked and regenerated ASI outputs with a very clean signal for long cable runs

H-ASI-AMP-2X8
2x8 ASI Distribution Amplifier

2x ASI Input

16x ASI Out

IP Managed

Dual Path In

ASI

- Accept & parse 2 ASI single program or multi program inputs at up to 210 Mbps each
- Either ASI input can be routed to any of the ASI outputs for flexible matrix routing
- Remotely managed and monitored with Thor network management software and web interface
- Full function front key pad and LCD allows full local control without the use of a computer
- Outputs up to 16 relocked and regenerated ASI outputs with a very clean signal for long cable runs

INTERGRATED RECEIVER DECODER IRD

DECODERS / RF /ASI /IP Receiver

Integrated Receiver Decoder (IRD) devices are professional broadcast tuners designed to accept and process programming from RF carriers, IPTV streams, and ASI program lineups. Thor IRDs are available for every major world modulation standard. Most IRDs are designed for Satellite DVB-S2 programming, however Thor also now offers the same

INPUT
RF - DVB-S2 or ATSC or QAM

IP TS Unicast or Multicast

DVB - ASI

OUTPUTS DVB-ASI SDI HDMI YPbPr IP TS Unicast or Multicast

IP STB

Equipped with every major video signal output, including HD-SDI, Thor H-HD-IRD units can provide HD video to any display or professional video system. Also available are modern digital audio outputs on both optical Toslink and XLR connectors. Dolby AC/3 audio pass through is standard, and closed caption support for both 608 and 708 captioning systems is present. The V3 platform adds a front panel LCD video display for confidence monitoring, as well as an internal program multiplexer for combining content from both ASI and IP sources simultaneously. The web interface displays all available programs and corresponding PID's. Each program can be independently added to either the ASI or IP outputs. The all selected programs are multiplexed into a single MPTS output. Additionally, the IP output can be configured for up to 32 SPTS single program stream outputs, each with different address and port settings. This allows the V3 system to be used as an intelligent ASI to IP or RF to IP Gateway with add drop and ASI multiplexing capabilities. Combined multi program transport streams carried over IP can also be separated into their corresponding single program streams. The RF tuner can be configured for QAM, 8VSB (ATSC), DVB-T, DVB-C, or DVB-S2 signal sources. Two CAS card slots allow decoded of encrypted programming. Thor HD-IRD units can be used for converting broadband programming to uncompressed HD video, as well as multiplexing and retransmitting programs to both ASI and IP outputs. Thor HD-IRD systems are a reliable and versatile platform for broadcast program decoding and TS protocol conversion.

# ADVANCED SATELLITE, IP & ASI DECODER

IRD Systems for DVB-S2 Satellite TV

HD Set Top Box Tuner / Decoder ATSC QAM DVB-T DVB-S2

QAM Input
ATSC Input
(8VSB)
DVB-T Input
ISDB-T Input

- HI Definition HDMI Output with embedded audio
- Decoder Supports both MPEG-2 and H.264 Video Codecs
- Compact form factor with low power consumption
- Multiple output formats for integration with Legacy Dispays
- Can be used with Non Digital Televisions
- Digital Cable Air RF frequency range   30-960 MHz

Digital TV Modulator

RF

RF   RF

HDMI   HDMI
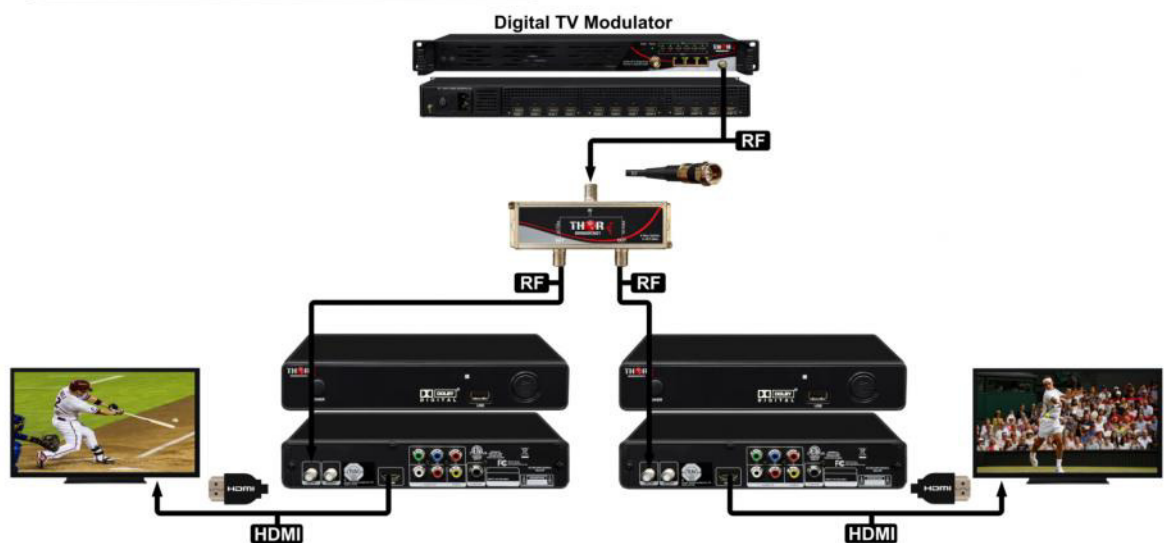
Compact IP Decoder Set Top Box

1 x Ethernet
10/100 BaseT
via RJ-45
shielded
connector

SD / MMC   USB-1   USB-2   USB-3

USB-4   SPDIF   AV   HD   ETHERNET   5V

- Compact Form Factor easily mounts behind displays
- High Definition HDMI output with HDCP support
- Supports both MPEG-2 and MPEG-4/H.264 Codecs
- Compatible with both Unicast and Multicast Transport Streams
- Supports up to 250 displays on a single subnet

HDMI   HDMI   HDMI   HDMI

HDMI   HDMI   HDMI   HDMI

H-IRD-V3-XX XX= S2 or ATSC or QAM

V3 IRD WITH ATSC or DVB-S2 or QAM TUNER FOR 8VSB OTA CHANNELS
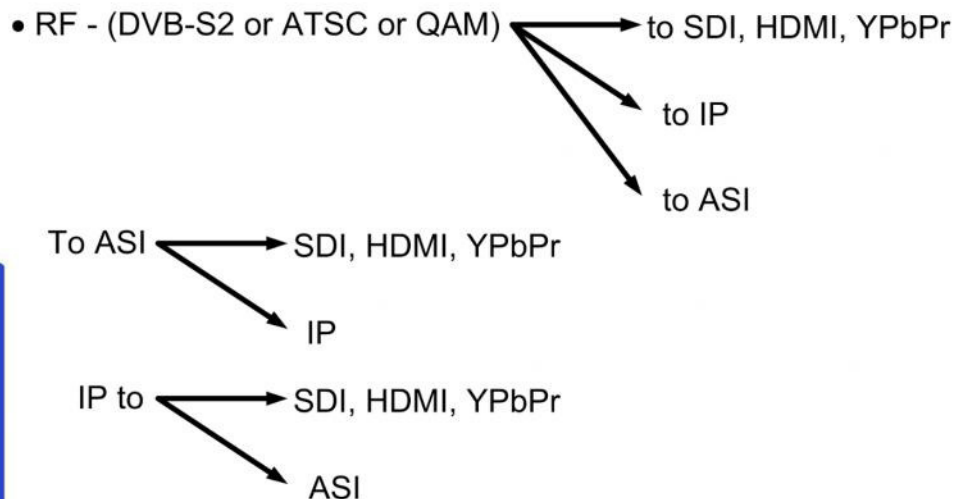
| DVB-S2 Input or |
| ATSC Input or |
| QAM Input |
| IP Input |
| AS I Input |

| HD-SDI Out |
| HDMI Output |
| YPbPr Output |
| IP Output—uncast or multicast |
| ASI Output |
| FRONT LCD MONITOR |

- Possible Applications:

- RF - (DVB-S2 or ATSC or QAM) → to SDI, HDMI, YPbPr
  → to IP
  → to ASI

To ASI → SDI, HDMI, YPbPr
→ IP

IP to → SDI, HDMI, YPbPr
→ ASI

Tunes and demodulates any L-Band frequency DVB-S2 or off Air ATSC or Cable TV QAM standard program stream
Advanced application Broadcast Decoder for converting IPTV, DVB-ASI, or DVB-S2 programming to HD-SDI video
Supports encrypted program stream delivery via BISS pre exchange key or via dual CAM/CAS slots
Provides full TS processing capabilities for ASI and IP streams for managing up to 32 broadcast streams
Highest quality HD-SDI output with support for resolution and frame conversations for up to 1080p 60
Tunes and demodulates entire RF carrier and processes all MPTS programs individually
Can decode any selected program to any of the HD video outputs while streaming remaining programs
Output is provided as IPTV stream in UDP MPEG-TS format as well as MPTS ASI program streams
Front facing program monitor for confidence feed, all settings available throw LCD or web browser

1,2,4,8 SD/HD-SDI over the Fiber

F-1MSDI-TX/RX
1SDI & HDSDI Over Fiber MINI Extender

- Supports full rate HD-SDI @ 1.5Gbps or lower SDI or ASI digital video
- 3G SDI model avialable
- Transports embedded audio channels as well as SDI ancillary data
- Return path serial RS-485 channel for controlling equipment on Tx end
- Link alarm indicators on both Tx & Rx indicate a problem with the fiber
- Status indicators for data rate and lock
- Small rugged portable standalone package ideal for portable installations
- Pathological test patterns are only supported on 3G SDI model

F-2MSDI-TX/RX
2 SDI or HDSDI Fiber Optic MINI Extender

- Supports 2 Full HD-SDI @ 1.5Gbps or lower SDI or ASI digital video
- Transports embedded audio channels as well as SDI ancillary data
- Return path serial RS-485 channel for controlling equipment on Tx end
- Link alarm indicators on both Tx & Rx indicate a problem with the fiber

F-1MSDI-2ET
1HD-SDI + 2 10/100 Ethernet + RS485 + Audio Transceiver over single fiber

- Compliant with SMPTE-292M HD-SDI and SMPTE-259M SD-SDI standard,
- Supports 1.485Gb/s and 27oMb/s
- Thor F-1MSDI-ET: one SD/HD-SDI input (BNC), one looping SD / HD-SDI output(BNC) and two fast Ethernet interfaces(shared 1ooM bandwidth, supports port-based VLAN)
- F-1MSDI-ET: two SD/HD-SDI output (BNC) and two fast Ethernet Interfaces (shared 100M bandwidth, supports port-based VLAN)
- One auxiliary channel, which can be 1-channel bi-directional audio, or two-channel unidirectional audio, or 2-channel contact closure input/output or 1-channel bi-directional contact closure, or 1-channel bi-directional RS422/RS232 channel
- One bi-directional RS485 channel, half duplex, up to 115.2Kb/s baud rate
- Integrated cable equalizer
- Embedded ESD and surge protection circuit
- NOP (No optical signal) alarm indications, output status indicator and input lock indicator
- APC circuit to perform at a very stable optical power

F-M4SDI-Tx/Rx
4 SDI / HDSDI Over 1 Fiber MINI Extender

- Supports 4 Full HD-SDI @1.5Gbps or lower SDI or ASI digital video
- Transports embedded audio channels as well as SDI ancillary data
- Return path serial RS-485 channel for controlling equipment on Tx end
- Link alarm indicators on both Tx & Rx indicate a problem with the fiber

F-M8SDI-Tx-Rx
8 SDI / HDSDI Fiber Optic Transmission Kit

- Supports 8 Full HD-SDI @ 1.5Gbps or lower SDI
- Transports embedded audio channels as well as SDI ancillary data
- Return path serial RS-485 channel for controlling equipment on Tx end
- Link alarm Indicators on both Tx & Rx indicate a problem with the fiber

F-M8SDI-ET -TX/RX
8 SD/HD-SDI + 10/100 Etheren
+ Analog Audio and RS Data over Multimode fiber Bidirectional Transmission Kit

- Supports 8 Full HD-SDI @1.5Gbps or lower SDI or ASI digital video (ASI -specific models only)
- Thansport 10/100 Etherent full duplex at the same time so It works as an etherent fiber optic tranceiver-extender
- Transports embedded audio channels as well as SDI ancillary data
- Return path serial RS-485 channel for controlling equipment on Tx end
- Link alarm Indicators on both Tx & Rx Indicate a problem with the fiber
- Auxiliary port can be : Bi-directional RS422 or RS232 or Exterenal 2 Audio's or External 8 Forward Audio or contact closure

CUSTOM MULTIPLEXED CHASSIS SYSTEM

Multiplex Optically any Signal over the single fiber

F-CHASSIS-4

- Live event conferencing with live HD video and audio to multiple classrooms or buildings
- Perfect for campus or business centers that require live distribution of HD audio and video
- Zero delay from encoding or decoding; unlike network video IP systems or wireless solutions
- Fully customizable for any type of video system or fiber infrastructure, free quote & consultation
- Industry leading broadcast solution for pro AV using modern standards such as HD-SDI

Available expansion ports
Zero video delay <0.1 MS
Highly Reliable System
5 year warranty from Thor
Free quote & consultation
Every component necessary
Auto redundancy available
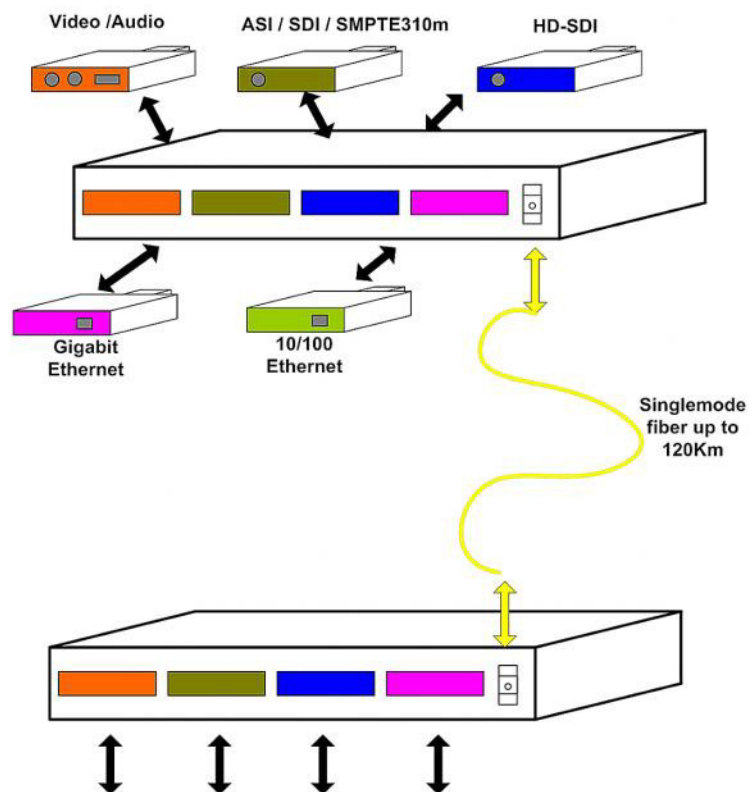
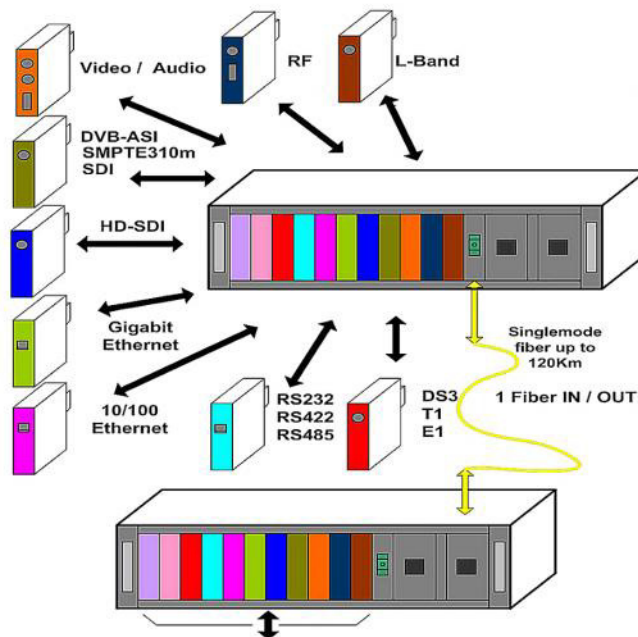|		
HD-SDI CWDM	1 or 2 per card	1 or 2 Optical Ch
3G-SDI CWDM	1 or 2 per card	1 or 2 Optical Ch
CVBS CWDM	2 Video 4 Audio	1 Optical Ch
Gigabit Ethernet	1 RJ-45 per card	2 Optical Ch
ASI or SMPTE310m	1 or 2 per card	1 or 2 Optical Ch

F-CHASSIS CUSTOMIZABLE CARD CAGE SYSTEM

Flexible Optical Multiplexing & Transport Platform Any signal over the single fiber

F-CHASSIS-12:
Twelve Slot Universal Card Cage

- Available in any combination of Thor chassis system optical card modules or optics
- Highest capacity optical fiber multiplexing systems with optional redundant power supply
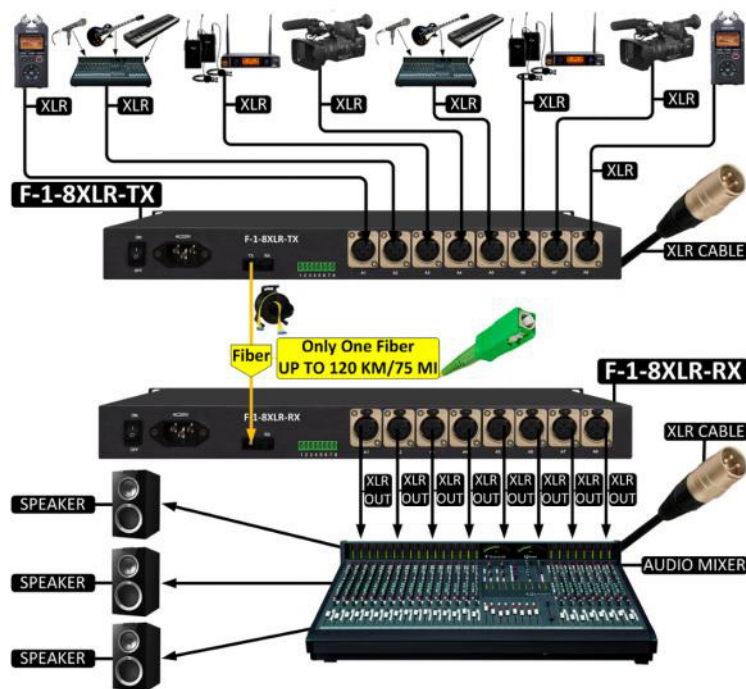- Supports up to 24 channels of 3G-SDI video in a single 3RU chassis and a single fiber output

HD-SDI	CWDM	1 or 2 per card	1 or 2 Optical Ch
3G-SDI	CWDM	1 or 2 per card	1 or 2 Optical Ch
CVBS	CWDM	2 Video 4 Audio	1 Optical Ch
Gigabit Ethernet		1 RJ-45 per card	2 Optical Ch
ASI or SMPTE310m		1 or 2 per card	1 or 2 Optical Ch

Analog Audio 1-8 - Balance XLR over 1 fiber
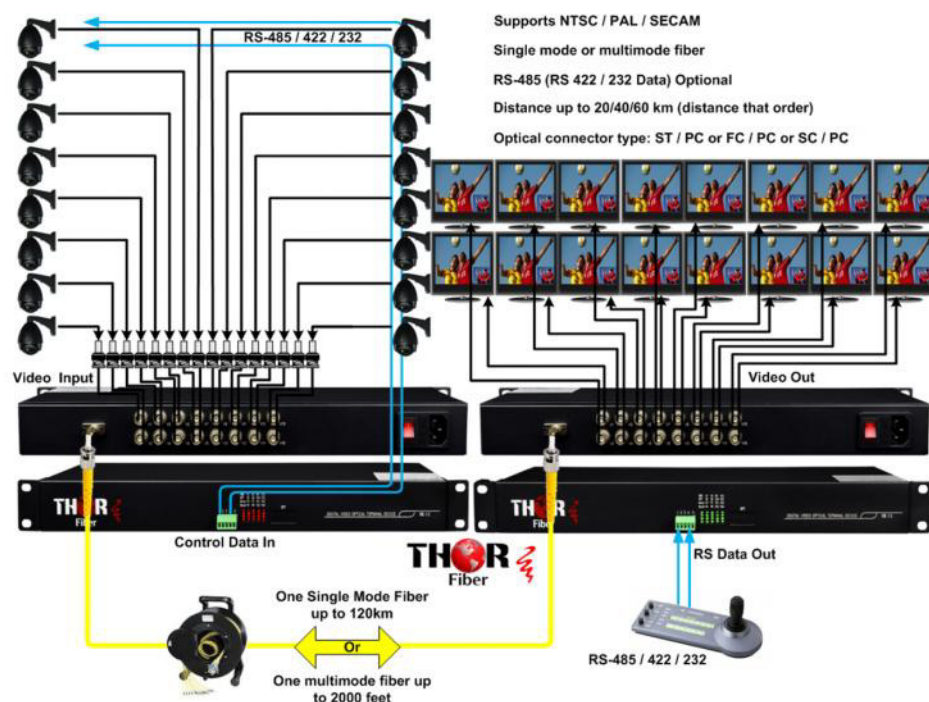# 1-16 CVBS Video /Audio + RS Data over fiber

1- 8 Professional High Quality 3-PIN XLR Audio over fiber extender

Up to 8 Analog Audio
Balanced Audio
XLR
Single fiber
Single mode or
Multimode
ST/PC or
SC/PC, FC/PC

F-1-8XLR-TX

XLR CABLE

Only One Fiber
UP TO 120 KM/75 MI

Fiber

F-1-8XLR-RX

XLR CABLE

SPEAKER

XLR OUT XLR OUT XLR OUT XLR OUT XLR OUT XLR OUT XLR OUT XLR OUT

SPEAKER

AUDIO MIXER

SPEAKER

1-16 CH CVBS Composite Video /Audio over Fiber - Transmitter and Receiver

Up to 16 CVBS Video
Up to 32 Audio
RS485 or RS232
Single fiber
ST/PC or SC/PC
or FC/PC

RS-485 / 422 / 232

Supports NTSC / PAL / SECAM

Single mode or multimode fiber

RS-485 (RS 422 / 232 Data) Optional

Distance up to 20/40/60 km (distance that order)

Optical connector type: ST / PC or FC / PC or SC / PC

Video Input

Video Out

Control Data In

RS Data Out

One Single Mode Fiber
up to 120km

Or

One multimode fiber up
to 2000 feet

RS-485 / 422 / 232

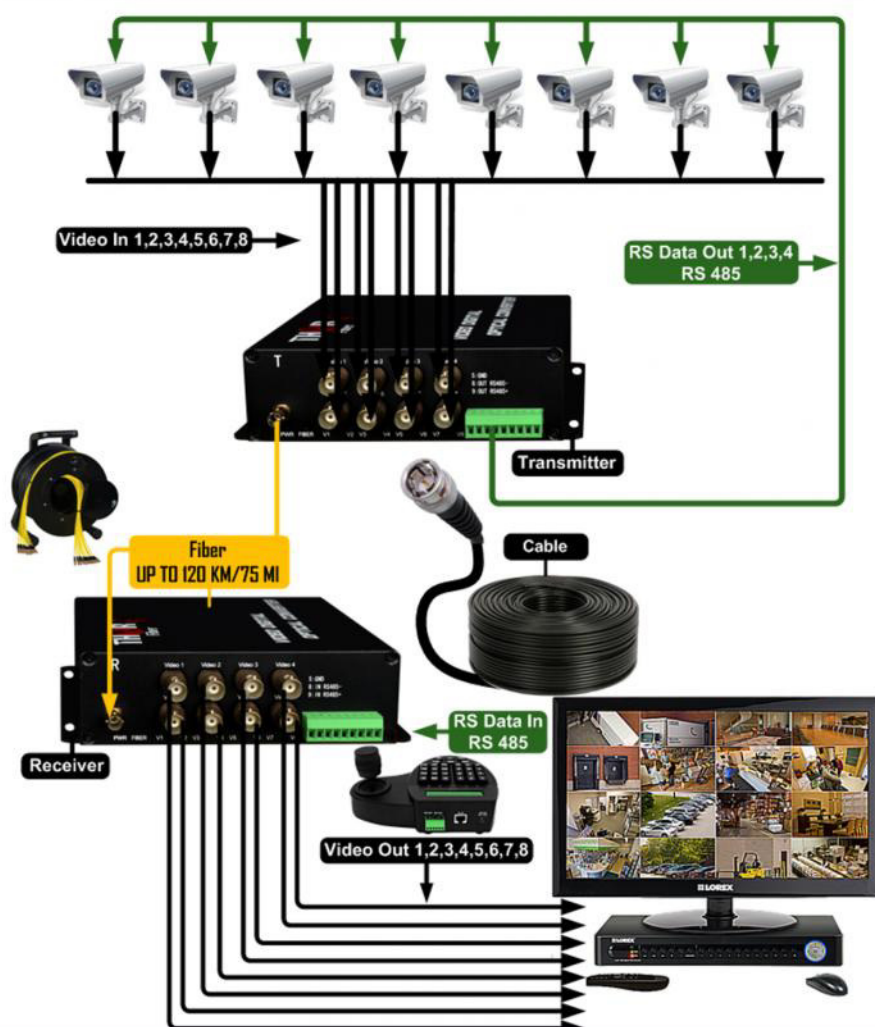# Analog Telephone Lines over single Fiber
HD-TVI 720p&1080p ,HD-CVI, AHD-L Over Fiber

1-16 Analog Telephone Lines over single Fiber

Up to 16 RJ11
Single fiber
Single mode or
Multimode
ST/PC or
SC/PC, FC/PC

TEL

OPT

4 3 2 1 LINK ● PWR

TELEPHONE FAX TELEPHONE PBX

F-1TEL / F-2TEL F-1TEL / F-2TEL

Transmission Over 1 fiber Up
to 120Km
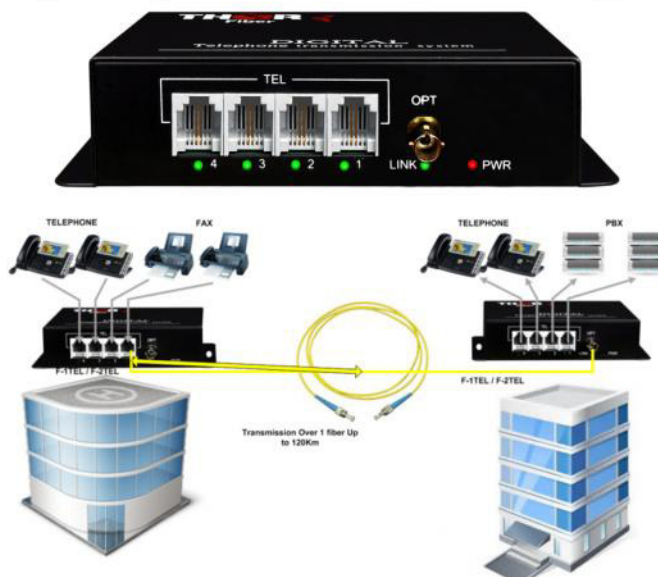
1-16 HD-TVI, AHD-H, AHD-M, AHD-L + RS Data over 1 fiber

Video In 1,2,3,4,5,6,7,8

RS Data Out 1,2,3,4
RS 485

Transmitter

Up to 16 BNC's
RS485 or RS232
Single fiber
ST/PC or SC/PC
or FC/PC

Fiber
UP TO 120 KM/75 MI

Cable

Receiver

RS Data In
RS 485

Video Out 1,2,3,4,5,6,7,8

THOR

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F-LBAND-TX & F-LBAND-Rx
Satellite L-Band RF 85omhz to 2100MZ Over the fiber up to 80Km

- 1x L-Band Satellite Outputs / Inputs
- 1x SC/APC Fiber Input
- Internal PSU with DC Input
- Automatic Gain Control
- Polarity Locking Settings
- 1550nm or CWDM available

The L-Band fiber optic Transmitter/Receiver pair are used for transporting RF Satellite signals in the L Band over fiber from the antenna to the satellite receiver. L-band RF signals have a very limited range over coaxial cable, typically no more than a few hundred feet. By transporting the L-Band RF signal over an optical fiber this range can be extended to over 50 miles. Fiber optic cables are much smaller and easier to work with than traditional copper coax. Additionally our units provides optional 13/18V LNB power as well as Automatic Gain Control (AGC) to manage RF input level. Fiber optic transport of satellite signals is useful in many applications, such as transportation of signals from a remote satellite farm to a broadcaster's headend, uplink and downlink applications, and DBS services.

F-L41B-CWRX, F-L41B-CWTX
4 Channel to 1 Fiber CWDM L-Band Satellite TV Transmitter and Receiver

- 4x L-Band Satellite Outputs / Inputs
- 1x SC/APC Fiber Input
- Internal PSU with DC Input
- Automatic Gain Control
- Polarity Locking Settings
- CWDM or DWDM
- Distance up to 80Km
- 13V DC or 18V DC to LNB
- 22Khz control tone

- Rack mount 4 Channel optical RF receiver for L-Band and RF carriers in the 50-3000 MHz range
- Internal optical DE multiplexer for use with Thor CWDM based LB41 or L41B transmitters
- Can be ordered for specific CWDM channels or RF frequency ranges for specific applications
- Provides 4 independent RF over fiber optical receiver circuits from a single fiber SC/APC input
- Basic unmanaged system with signal detect LEDs and polarity locker 13-18VDC & 22KHz tone
- Standard Type-F television coax connectors for inputs with 75 Ohm termination
- Can be ordered for specific CWDM channels and with higher power optics for more output
- Provides 4 independent RF over fiber links on a single strand of Single mode fiber SC/APC

F - LB41 LTTH
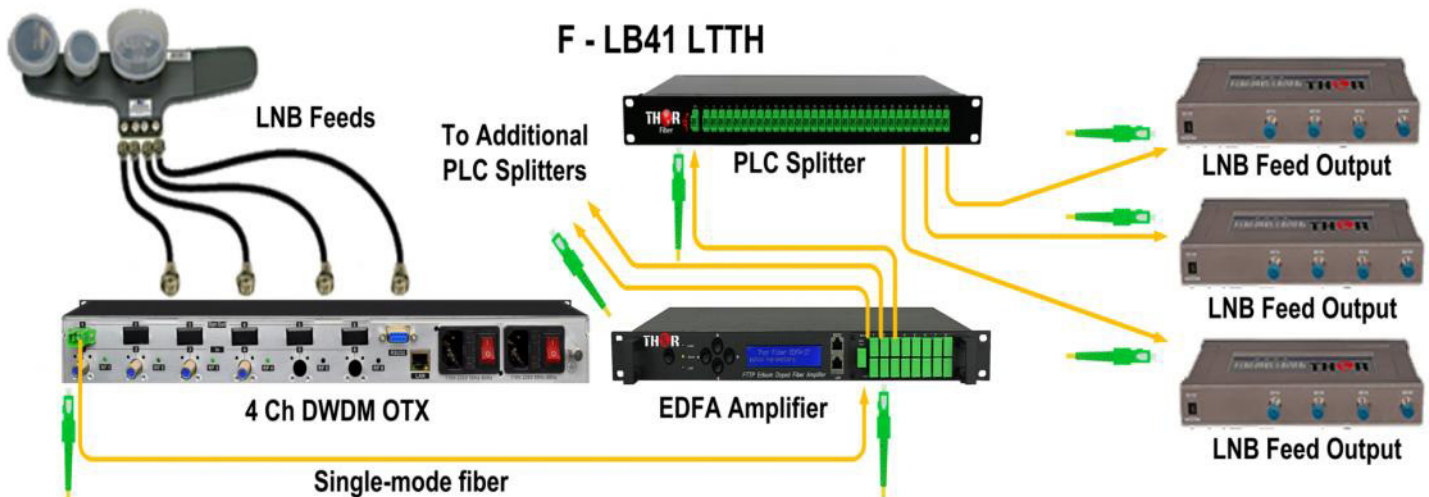
Designed for both remote location of satellite antennas or distribution of satellite content signals from a single antenna to multiple distributed locations. Combines multiple L-Band fiber optic transmitters and receivers in a single enclosure with optical filters to multiplex the signals to a single fiber. Both CWDM and DWDM versions are available for compatibility with EDFA optical amplifiers. Thor L-Band category transmitters have model numbers that indicate their configuration. For example, the F-LB41-CWTX system Indicates that the unit is a managed 4 channel CWDM optical transmitter with 1 fiber output. Whereas the F-L41B-CWTX is an L-Band 4 channel 1 fiber basic CWDM transmitter; meaning there is no network management or RS-232 control. L-Band distribution or transport systems from Thor are available in any channel configuration and with any type of market available optics systems. The below example describes a basic satellite antenna remote location setup. With proper inputs, this allows the antenna array to be located up to 10 miles away from the receiver.

SATELLITE TV 6 CHANNEL OPTICAL LINKS UP TO 80KM OVER SINGLE FIBER

Managed 6 Channel LNB's L-Band Single Fiber Transmitter and Receiver

F-6LB-1SMF-CWTX
Managed

F-6LB-1SMF-DWTX:
Managed DWDM L-Band

- Supports satellite TV systems with up to 6 LNBs over a frequency range of 50-3000 MHz over single fiber
- Network management system & SNMP for monitoring signal level and optical parameters
- Supports remote serial control and monitoring via RS232 on front panel RJ-45 connector
- Six independent RF circuits with DIP switches for powering LNBs & locking polarity
- Wide use of alternate applications for RFoG systems requiring support for 50-3000 MHz
- Fully DWDM based signals that can be optically amplified through EDFA systems for FTTH
- Same LB61 configuration single fiber SC/APC output and rear panel polarity locking DIP switches
- 6x L-Band Satellite inputs with 1x SC/APC Fiber Output
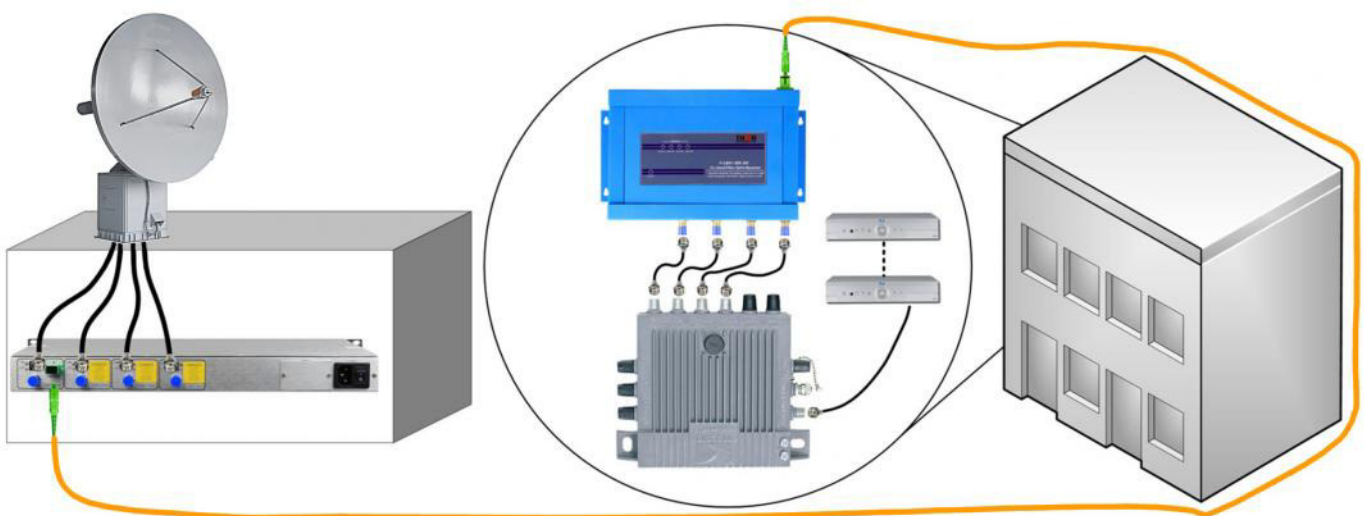
- High density compact 6 channel RF receiver with internal CWDM/DWDM de Mux and passive routing
- Wideband frequency response of 50-3000 MHz for ideal integration in RFoG applications
- Can be custom ordered for alternate CWDM/DWDM channel configurations for use with any system
- Easy to read indicator LEDs for all six optical channels with link lock and indicators for Hi/Low

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THOR   www.thorbroadcast.com   •   sales@thorfiber.com   •   800-521-8467

F-GPS-TX , F-GPS-RX
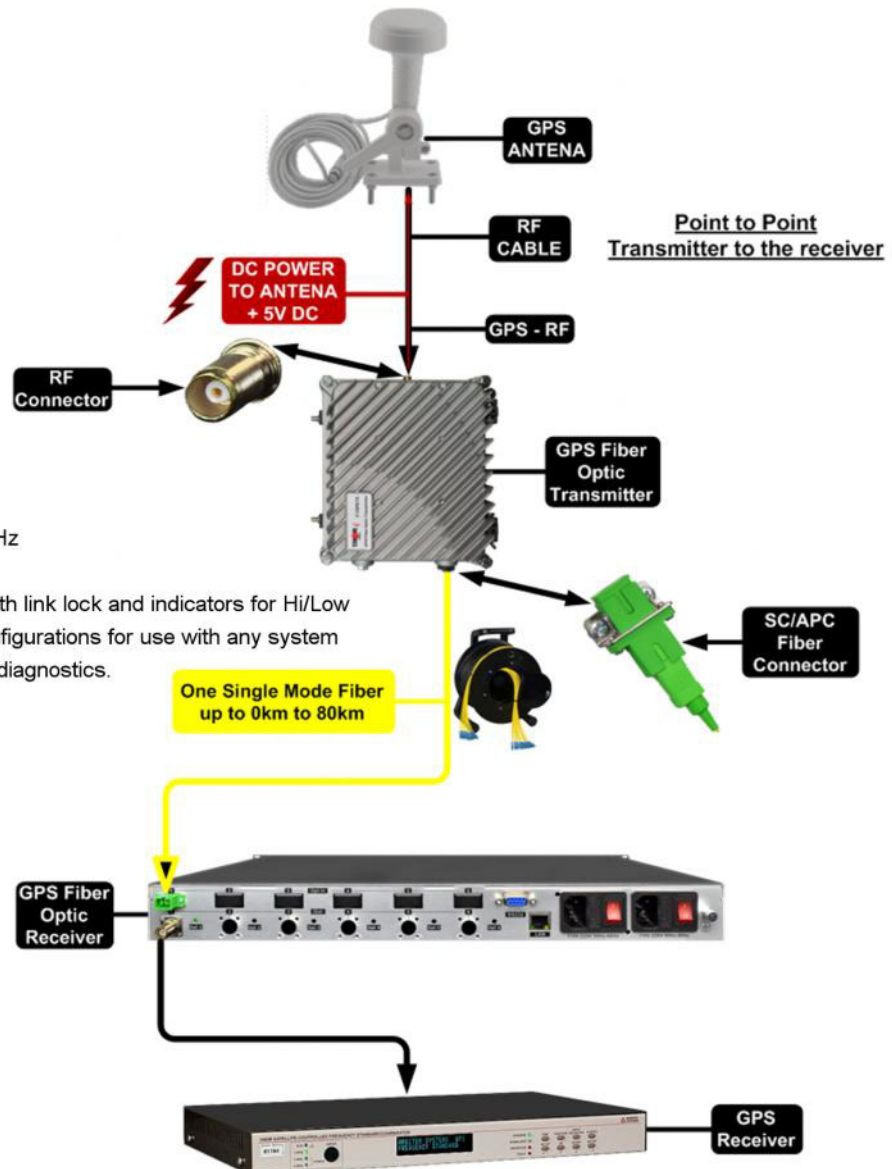## GPS Fiber Optic Transmitter and Receiver

Transmitter

Receiver

- 1 GPS Antenna Satellite Inputs
- 1x SC/APC Fiber Output
- 1 RF N type RF connector
- Polarity Locking Settings
- 5V DC power to the antenna
- Up to 20Km

GPS ANTENA

RF CABLE

Point to Point Transmitter to the receiver

DC POWER TO ANTENA + 5V DC

GPS - RF

RF Connector

GPS Fiber Optic Transmitter

- Supports satellite GPS frequency range of 1200-1700 MHz
- supplies the 5 volts to each antenna
- Easy to read indicator LEDs for all six optical channels with link lock and indicators for Hi/Low
- Can be custom ordered for alternate CWDM channel configurations for use with any system
- LEDs reflecting the failures from the top box and its own diagnostics.
- 19" rack
- Internal110-220V AC power supply

SC/APC Fiber Connector

One Single Mode Fiber up to 0km to 80km

GPS Fiber Optic Receiver

GPS Receiver

4 GPS OVER 4 FIBERS

Redundant 4 GPS Systems

F-4GPS-TX
Managed 4 GPS Fiber Optic Transmitter and Receiver

Transmitter

Receiver

• 4 GPS Antenna Satellite Inputs
• 4 x SC/APC Fiber Output
• 4 RF N type RF connector
• Polarity Locking Settings
• 5V DC power to the antenna
• Up to 20Km

Satellite

Input from 4 GPS Antennas

• Redundant power supply
• Available 4 GPS over 1 fiber (CWDM)
• Supports satellite GPS frequency range of 1200-1700 MHz
• Supplies the 5 volts to each antenna
• 19" rack
• Internal 110-220V AC power supply
• IP NMS Available (optional)
• Easy to read indicator LEDs for all six optical channels with link lock and indicators for Hi/Low
• Can be custom ordered for alternate CWDM channel configurations for use with any system
• LEDs reflecting the failures from the top box and its own diagnostics.

4 Single Mode Fibers up to 20km

4 GPS RF Outputs
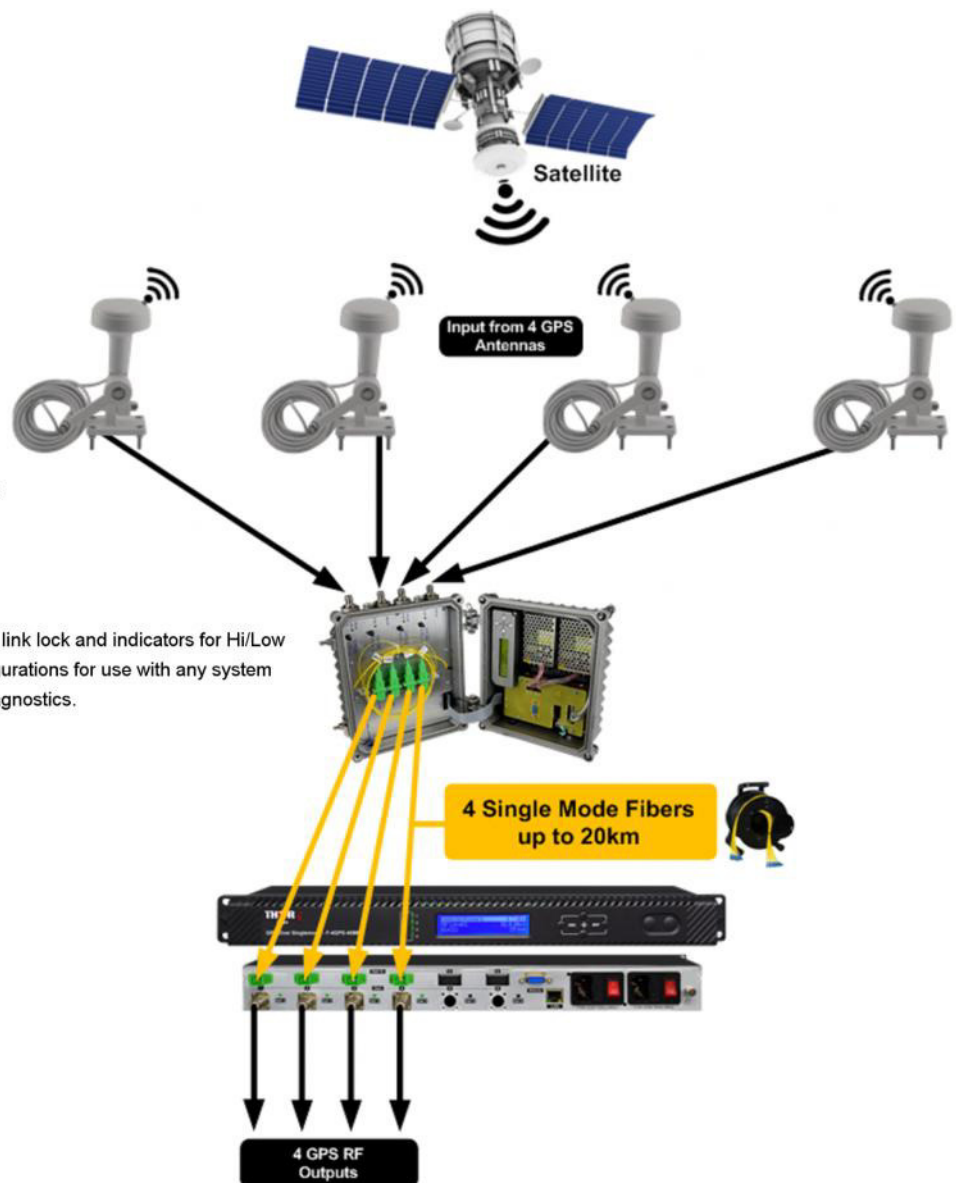
# FIBER OPTIC CABLES AND JUMPERS

Fiber Cable in Any Configuration

Any Cable, Any Length
Hard to Find Cables
Custom Applications
Specified Ratings Cable

Fiber Cables

• Thor can provide any fiber cable needed for any application including direct burial and aerial
• Pre terminated in any length or with any strand count manufactured to any required standard
• Eliminates the need to have a specialized fiber technicians for cable termination or splicing
• Tested to work with Thor equipment and allows for turn key complete systems from one order

Convert Fiber Connectors
Connect Dissimilar Fibers
Order Exact Length Patches
Eliminate Headend Clutter
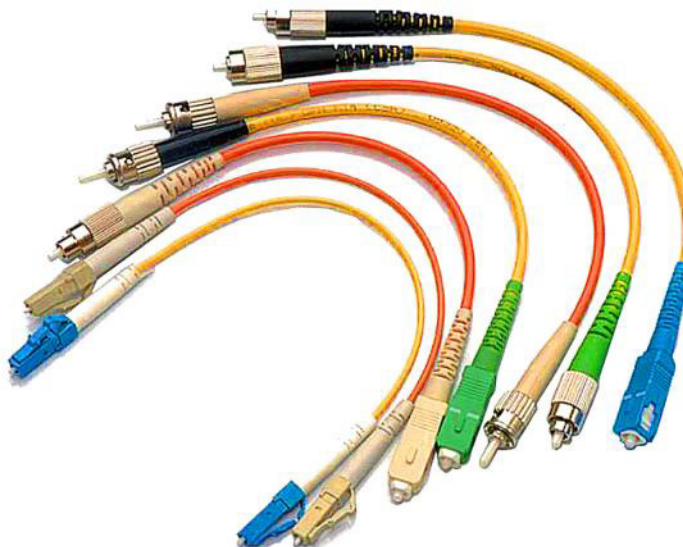
Fiber Jumpers

Available with any fiber connector on both ends, simple solution for adapting connectors
Can be used to adapt a flat fiber termination to an angle polished APC type termination
Available in any configuration, length, fiber type, or jacket by individual request

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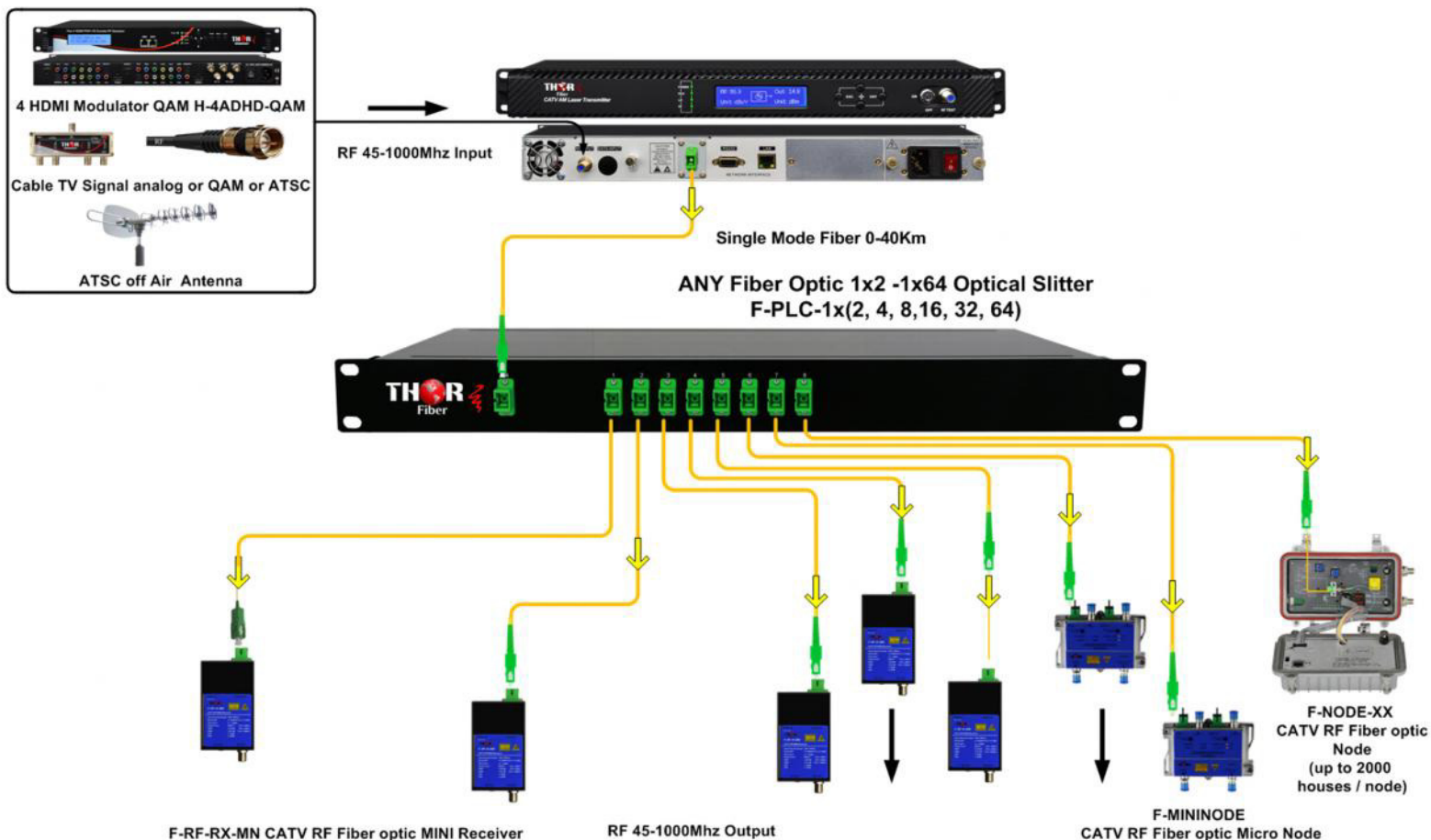
F-RFTX-1310
Managed 1310nm Broadband RF Transmitter

- 1x RF CATV Input 45-1000Mhz
- 1x SC/APC Fiber Output
- 1 Internal PSU, 2 Optional
- Polarity Locking Settings
- 1310nm or 1550nm

Thor broad line of F-RF products are used for cable and free to air TV broadband signals. These systems act as fiber extenders, allowing distribution to much further locations than coax would allow. Can be used to transport a cable TV connection at one location to any other location connected by Single mode fiber cable. Thor F-RF systems are available in a broad range of specifications for use in specific applications. A dedicated team of optical engineers are available to speak with for consolation on fiber to the home equipment or Thor turn key systems. In addition to free consultation and design, 24/7 Gold Support is available. Link distances past 100 miles are possible with correctly tuned EDFA amplifiers

- Designed for world standards cable TV signals in the broadcast 45-900 MHz frequency range
- Converts full bandwidth broadband with support for full bit rate saturated channel lineups
- Available in 5 industry standard laser optics power ratings for use with PLC optical couplers
- Fully managed system with remote monitoring and alarm support and RS-232 on DB-9 Serial
- Laser arming switch with key lock to ensure safety, high power outputs drive up to 32 receivers

4 HDMI Modulator QAM H-4ADHD-QAM

Cable TV Signal analog or QAM or ATSC

ATSC off Air Antenna

RF 45-1000Mhz Input

Single Mode Fiber 0-40Km

ANY Fiber Optic 1x2 -1x64 Optical Slitter
F-PLC-1x(2, 4, 8,16, 32, 64)

F-RF-RX-MN CATV RF Fiber optic MINI Receiver

RF 45-1000Mhz Output

F-MININODE
CATV RF Fiber optic Micro Node

F-NODE-XX
CATV RF Fiber optic Node
(up to 2000 houses / node)

F-RF-RX-RM

Fiber Optic RF Broadband receiver—Rack Mount Automatic Gain Control

1 Fiber Input—SC/APC

RF (coax Output)

Automatic Gain Control

- Industrial rack mounded television broadband optical RF receiver with automatic gain
- Available with redundant inputs as well as secondary PSU for ultimate system reliability
- Managed via front panel keypad and LCD with front facing alarm and status LEDs
- Supports full broadband cable or broadcast standard RF output on frequency 45-900MHz
- Very low receiver sensitivity (~ -11dBm) with adjustable RF output power via gain control
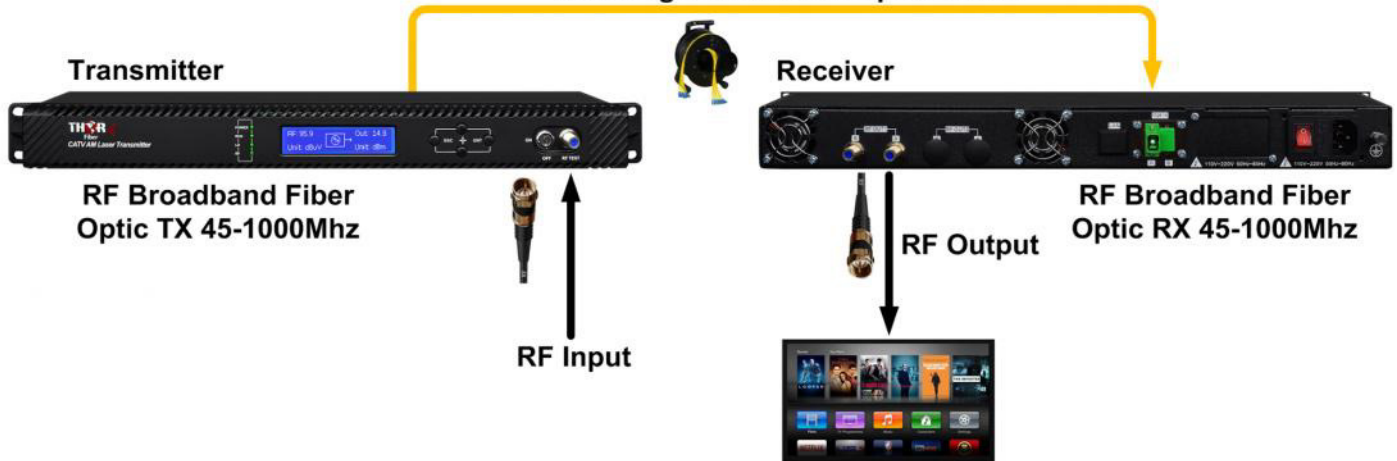
F-RF-Rx-MR

Broadband Optical RF Mini Receiver

Low Cost Receiver

High Sensitivity

RFoG Compatible

- Compact low cost full bandwidth optical receiver for television signals within 45-900 MHz
- Good receiver sensitivity of approximately –9 dBm optical input power threshold
- Single mode fiber input on industry standard SC/APC with 75 Ohm Type-F output
- Output RF power level adjustable with manual gain control & optical signal status LED

One single mode fiber up to 120km

Transmitter

Receiver

RF Broadband Fiber Optic TX 45-1000Mhz

RF Output

RF Broadband Fiber Optic RX 45-1000Mhz

RF Input

EDFA OPTICAL AMPLIFIERS FOR DWDM

Amplify Any Incoming 1550nm Signal Optically

F-EDFA-XX
EDFA OPTICAL AMLIFIER

XX- +10 to +24 dBm Output

SC/APC Fiber In & Out

RS-232 & NMS SNMP

- Managed EDFA optical amplifier available in power ratings from +10 to +24 dBm output
- Front panel LCD with output power level compared to input signal detect power level
- Alarm indicators for low optical power or for failure of the primary pump laser system
- Remotely monitored and configured with network management and RS-232 serial port

F-EDFA-27-C1x8
Eight Output EDFA with CWDM Passives for GPON

FTTH

FTTC

LTTH

LTTP

- High power FTTH type EDFA with 8 output ports and integrated CWDM passives
- Allows OLT / ONU connection for internet service in passive optical PON networks
- Remotely managed and monitored with network management and serial RS-232
- Front facing display with power level indicators and multiple failure alarm indicators
- Available in any optical passive configuration with power ratings from +10 to +29 dBm

FTTH BROADBAND ORIGINATION GEAR

RF Transmitter and Launch EDFA for Large Scale FTTH

FTTH
FTTC
LTTH
LTTP

F-RF-T-1550-8-6
Niobium Crystal Externally Modulated Optical RF Transmitter

- Cleanest possible optical RF modulation available with current technology, lowest noise figures
- Internal EDFA preamplifier with 1x8 PLC coupler for 8 outputs at +6 dBm for launch EDFAs
- Proves a signal clean enough to drive over 4096 optical receiver modules after launch EDFAs
- External modulation required for RF signals that are amplified through more than 3 EDFAs
- Fully managed with network management system, alarm reporting, and RS-232 serial port

F-EDFA-16-WDM-36
Primary Launch EDFA System up to 36 dBm Output

Up to +36 dBm
Most Powerful
Primary EDFA

- Most powerful EDFA optical amplifier for FTTH available with up to +36 dBm power output
- Available in custom configurations and optics packages for CWDM or DWDM integration
- Proves service for 512 subscribers when used with 1x32 PLC couplers during fiber distribution
- Remotely monitored and configured with network management system and RS-232 Serial
- Contact Thor today for free design and consultation on fiber to the home service delivery

F-8RP-RX
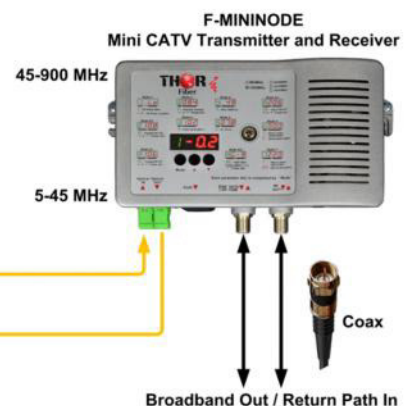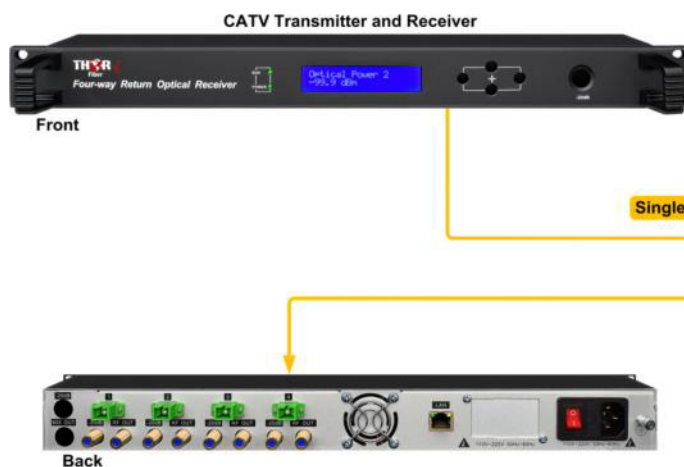# 8 Channel 5-45MHz Return Path Optical receiver

8x Return Path Circuits

8 Fiber Inputs, 8 RF Out

- 8 Independent RF optical receivers for video on demand or pay per view return path signal
- Allows cable head end operators ability to receive information sent back from cable STB box
- Used for 2 fiber FTTH or with external optical passives, compatible with CWDM or DWDM
- Network management option for remote monitoring as well as RS-232 serial control RJ-45
- Rear gain controlled outputs with front facing adjustable taps for monitoring or manual patch

Fiber Optic RF Receiver 54-870 MHz and Return Path RF Transmitter 5-45Mhz

Many Configurations Available

General Purpose Mininode

Supports 5-45 MHz Return Path

CATV Transmitter and Receiver

Front

F-MININODE
Mini CATV Transmitter and Receiver

45-900 MHz

5-45 MHz

Singlemode Fiber

Coax

Broadband Out / Return Path In

Back

- Dual optical ports for receiving television on 45-900 MHz and transmitting 5-45 MHz return path
- Available in custom configurations and optics packages for CWDM or DWDM integration
- Internal band pass filter with multiple taps for support of any world standard broadcast TV system
- Allows customer premise equipment to communicate with cable operators headend for VOD/PPV
- Simple to use low cost node unit for integration into campus or municipal hybrid fiber coax systems

OPTICAL PLC COUPLERS & SPLITTERS, CWDM, DWDM MUX / DEMUX

Low Insertion Loss Splitting Of Optical Signals To Many Outputs

F-PLC-1 x XX
1x2,1x4, 1x8, 1x16, 1x32 Fiber Optic Splitter—Coupler

1 Fiber optic input SC/APC or ST, or FC

2 or 4 or 8 016 or 32 Outputs

19" Rack-mountable

Support 1310,1550, CWDM, DWDM

Any Passive Configuration

Custom Order Optical Filters

High Quality Metal Enclosure

Latest Generation Optics

Manufactured to Specification
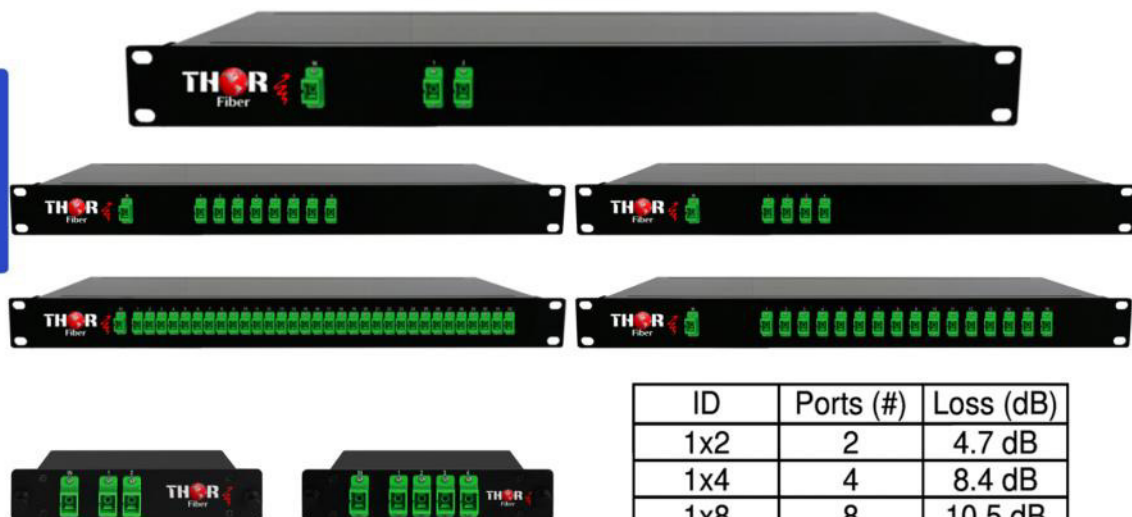
ID	Ports (#)	Loss (dB)
1x2	2	4.7 dB
1x4	4	8.4 dB
1x8	8	10.5 dB
1x16	16	13.5 dB
1x32	32	16.5 dB

F-CWDM-1 x XX, F-DWDM-1 x XX
2CH, 4 CH, 8CH, 16CH CWDM or DWDM Optical MUX / DEMUX

1 Fiber optic input SC/APC or ST, or FC

2 or 4 or 8 OUTPUT

19" Rack-mountable

Supports CWDM 1470nm, 1490nm, 1510nm,1530nm, 1550nm,1570nm, 1590nm, 1610nm

DWDM

ID	Ports (#)	Loss (dB)
1x2	2	1.4 dB
1x4	4	1.6 dB
1x8	8	1.8 dB
1x16	16	4.3 dB
1x32	32	6.5 dB

Optic Fiber

λ_1

λ_2
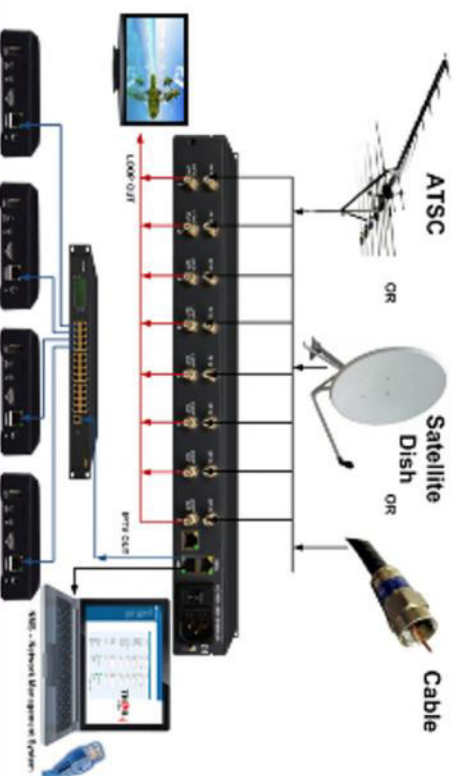
λ_3

High Speed

Branching Fiber

Branching Fiber
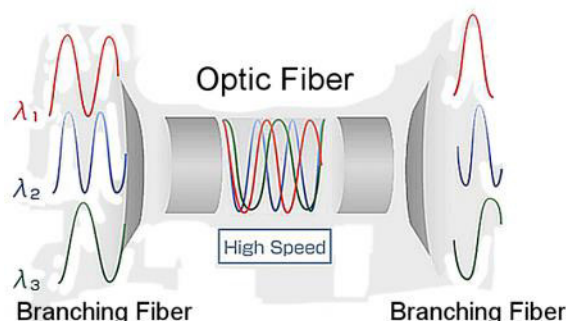
• Available for any CWDM or DWDM channel combination or fiber connector type
• Very low insertion loss of approximately 2.0 dB per optical channel or optical port
• Optical CWDM or DWDM passives can be integrated into most fiber equipment
• High quality rack mount enclosures available for added flexibility in system design

THOR BROADCAST

Complete Broadcast Solutions for HD Video

Turnkey Encoding & Decoding

Easily Transport any Signal over IP / Fiber / RF

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1 - 12 HD-SDI or 1 - 24 HDMI CATV RF Modulator and IPTV ENCODER

MPEG2/ H.264 / AC3

QAM / ATSC /DVB-T /

Low Latency / 1080p

$500 / HDMI

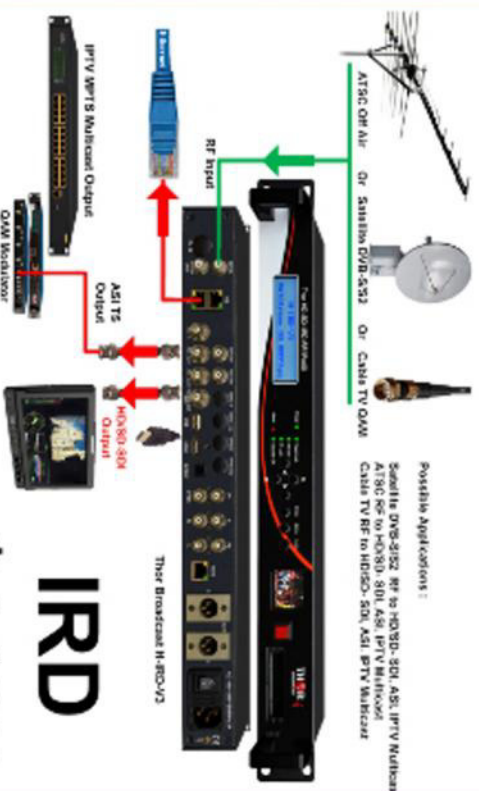## 1-16 RF to IP Gateway - ATSC/ QAM / DVB-T / ISDB-T

ATSC

OR

Satellite Dish

OR

Cable

LOOP OUT

IPTV OUT

VMS - Network Management System

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1 HDMI to RF MODULATOR

QAM / ATSC / DVB-T / ISDB-T

$350

IP STB IP to HDMI

$89

IRD - RF To SDI /IP /ASI

ATSC / DVBS-2/ DVB-T /ISDB-T

ATSC Off Air

Or Satellite DVB-S2

Or Cable TV QAM

RF Input

IPTV/IPTS Multicast Output

QAM Modulator

ASI TS Output

HD/SD-SDI Output

Thor Broadcast H-IRD-V2

Possible Applications :

Satellite DVB-S2/S2 : RF to HD/SD- SDI, ASI, IPTV Multicast
ATSC RF to HD/SD- SDI, ASI, IPTV Multicast
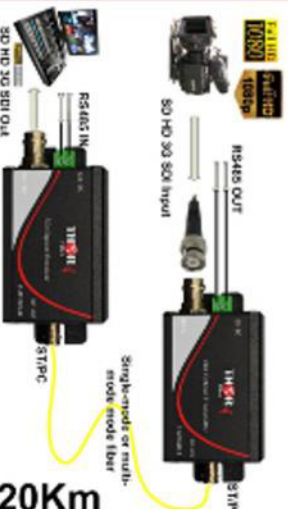Cable TV RF to HD/SD- SDI, ASI, IPTV Multicast

IRD $1495

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1 Bi-directional HD-SDI + 10/100Ethernet Over 1 Fiber

$1350

HD SDI TX/RX over fiber kit

SD HD 3G SDI Out

RS485 IN

Full HD 1080i 1080p

SD HD 3G SDI Input

RS485 OUT

ST/PC

Single-mode or multi-mode fiber

ST/PC

20Km

$349