EFFICIENT VIDEO DELIVERY

ENENSYS Networks

THE COMPANY

ENENSYS designs and manufactures innovative professional equipment and software enabling Efficient Video Delivery over Broadcast & Telecom Networks.

The ENENSYS team is comprised of highly experienced engineers, gathering expertise across a broad technology base including hardware design, RF, signal processing, real-time software and virtualized and cloud-native applications. The company develops all the technology embedded in its solutions: 90% of the team members own an MSc or a PhD in Information Technology, Software or Electronic and Electrical Engineering.

ENENSYS' corporate culture is rooted in strong human values such as creativity, empathy and reactivity to anticipate our customer's needs and achieve customer care excellence.

Focused on innovation, ENENSYS Networks are organized around 2 products lines:

- **Broadcast Networks**: Equipment for Digital Terrestrial TV, Targeted Content Insertion and Switches & IP Transport... Products sit between encoder/multiplexer output and transmitter input, facilitating signal distribution over a wide variety of networks. Covered standards include DVB-T2, ATSC3.0, ISDB-T, ...
- **Telecom Networks**: Software for Mobile TV over LTE Broadcast and MCPTT Mission Critical & Public Safety applications. A distributed and scalable virtualized software enables LTE Broadcast capability on existing LTE/4G/5G Networks.

To sum up: **it's all about Efficient Video Delivery**.

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ENENSYS Broadcast Networks product portfolio

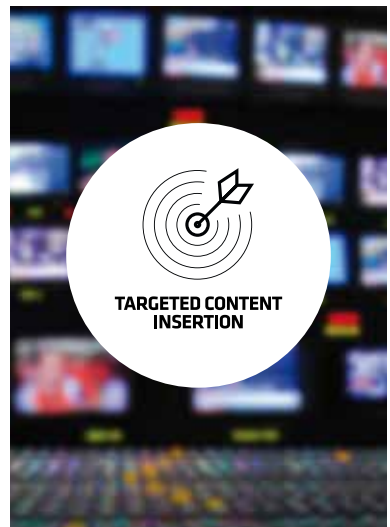
ENENSYS Broadcast Networks solutions are based on products fully imagined and developed by ENENSYS, from the hardware design to the embedded software and Graphical User Interface. These broadcast grade products are deployed in many commercial services supporting a high level of availability.

ENENSYS Broadcast Networks offers a large product portfolio, that could be divided in the 3 following domains:

TERRESTRIAL BROADCASTING

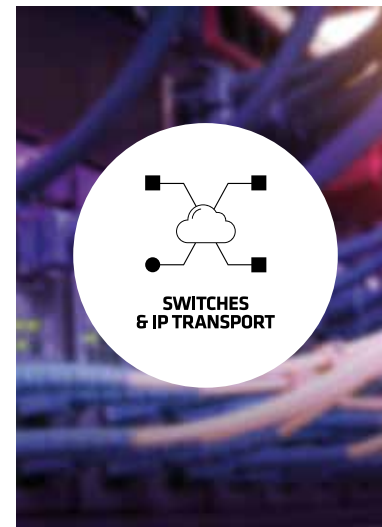
DVB-T/T2
ISDB-T
ATSC3.0

- Secure SFN
- Network Regionalization
- Single Illumination DTH to DTT
- Content Rebroadcasting



TARGETED CONTENT INSERTION

- Local TV/Channel Insertion
- Targeted Ads Insertion
- Targeted News insertion
- Targeted Emergency Alert

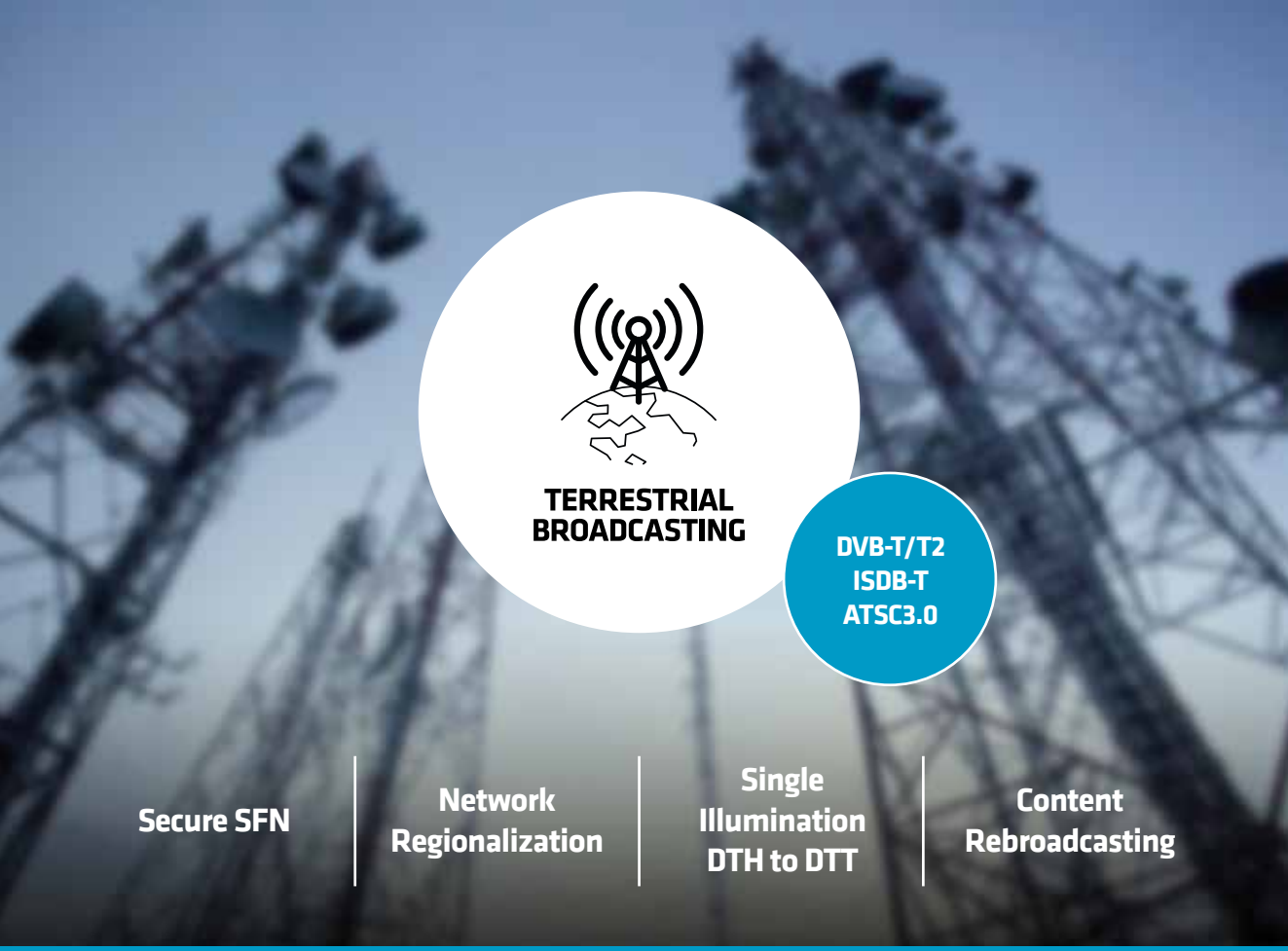


SWITCHES & IP TRANSPORT

- Seamless switching
- Product and system redundancy
- Multi Link redundancy
- Video / Radio over IP

SERIAL INVENTOR

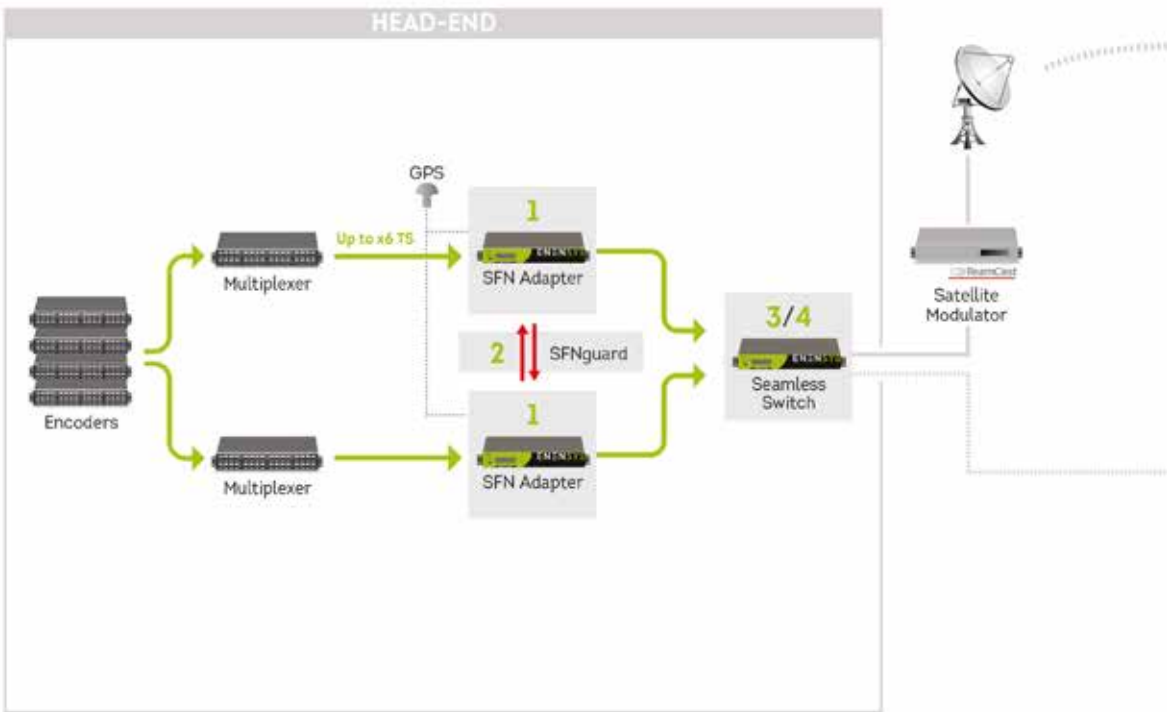
ENENSYS has a strong IPR portfolio, with more than 25 patents, all dedicated to the Video Delivery sector. Linked to this innovation work, ENENSYS is proud to be the first to introduce new technologies and solutions to support customers in their network optimizations and deployments.



SOLUTIONS

DVB-T AND SECURE SFN MANAGEMENT SOLUTION

- **Reliable end-to-end SFN solution**
- **SFN seamless switch-over** to avoid TV black-out
- Commercially roll-out **in major DVB-T SFN networks**



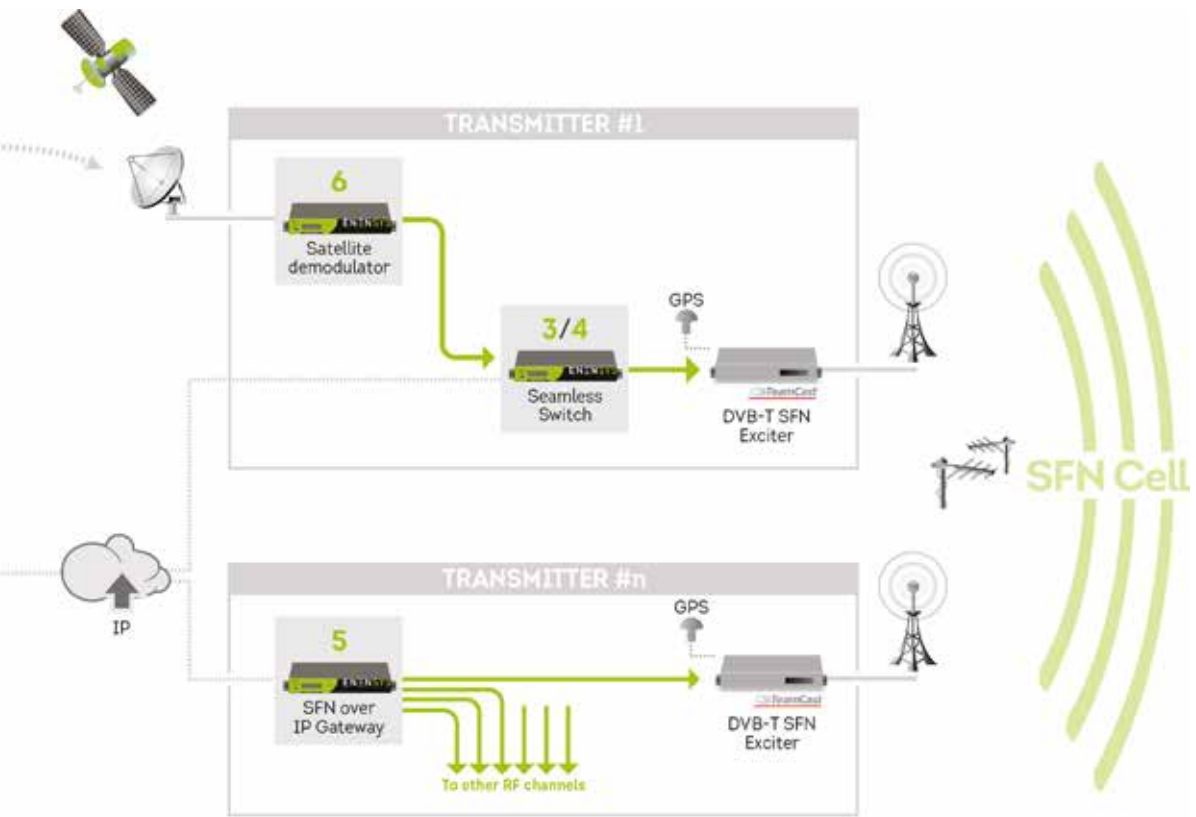
PRODUCTS

KEY BENEFITS

- High-grade broadcast equipment
- Complete range of SFN products
- No more black screen
- Uninterrupted service guaranteed
- Flexible solution based on standards
- T2 ready solution

KEY FEATURES

- SFN Seamless switch-over
- Unique SFN preservation when distributing over IP networks
- Video over IP distribution for OPEX reduction
- 24/7 monitoring of the network and system
- Dense solution, up to 6 SFN adapters in 1U

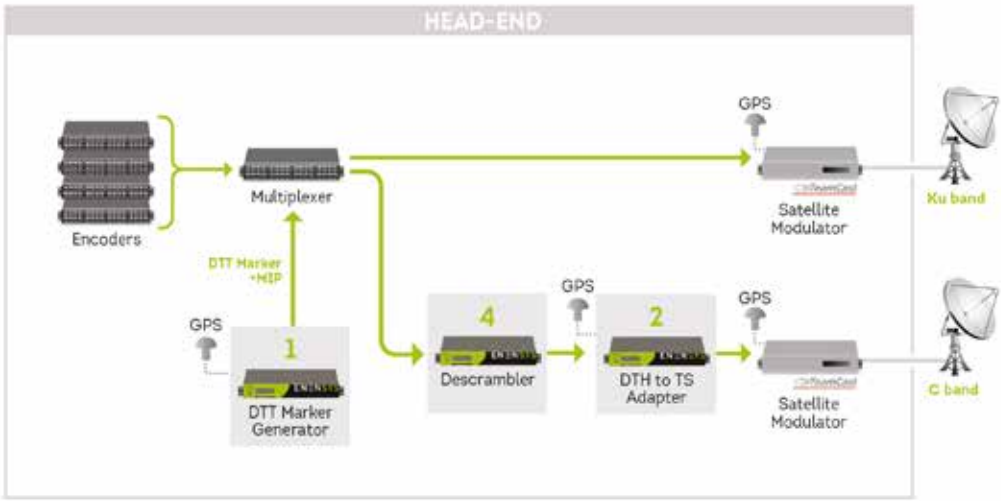


5 **GigaCasterII** Dense TS over IP Gateway | P.**51**
6 **SatCaster** Standalone DVB-S/S2 demodulator | P.**54**

SINGLE ILLUMINATION SOLUTION
DVB-T WITH DTH CO-EXISTENCE

DTH + DVB-T

- **Reduce OPEX cost** by delivering content once
- **Innovative end-to-end solution** for DTH and DVB-T services
- **Share satellite capacity** between DVB-T SFN distribution and DTH



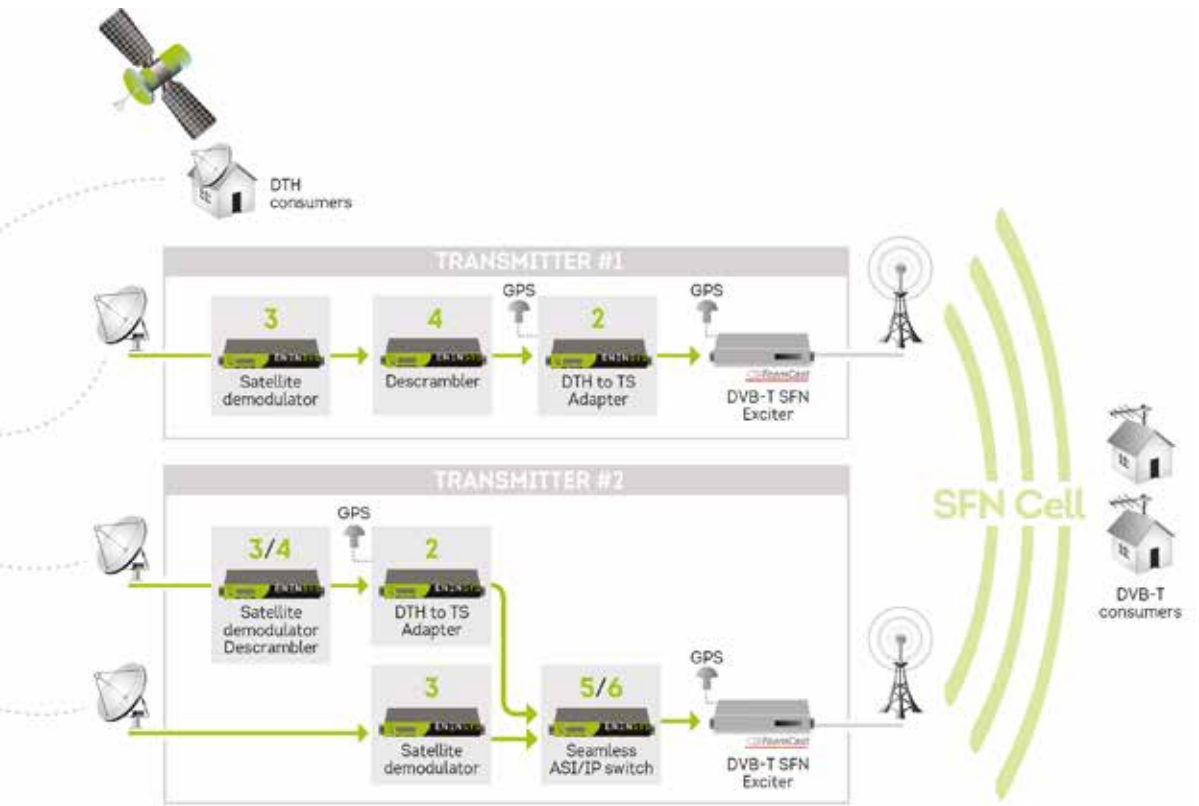
PRODUCTS

KEY BENEFITS

- **No duplication of content over satellite network (no dual illumination)**
- **DTH compliant stream**
- **Backup DTT distribution with DTH**
- **Transmitter and DVB-T receiver agnostic**
- **T2 ready**

KEY FEATURES

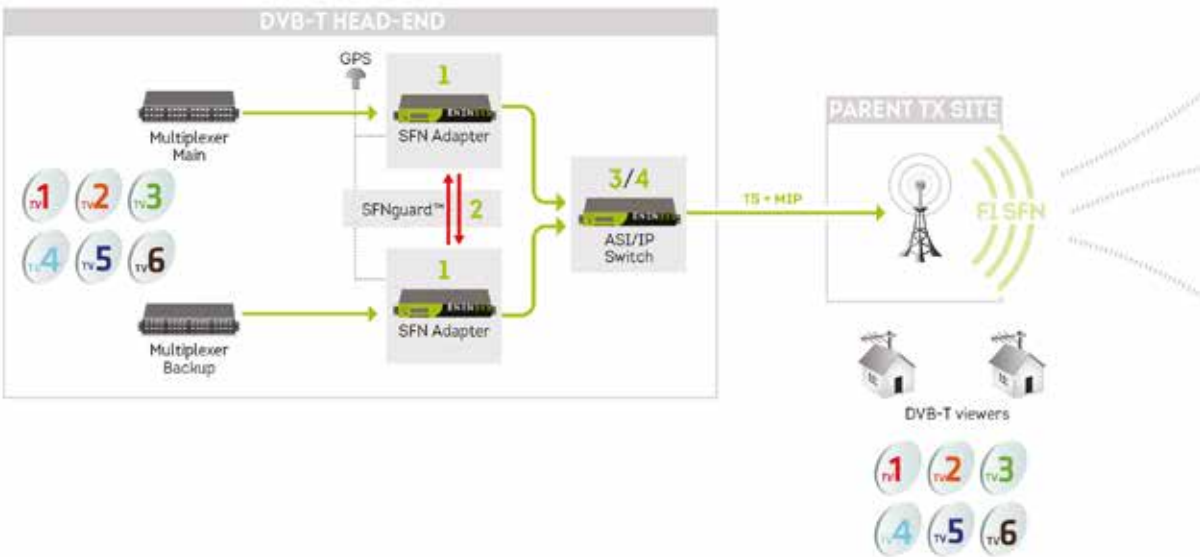
- **SFN broadcasting compliant**
- **No modification of A/V services**
- **Independency from content format (SD/HD/4K, MPEG2/H264, ...)**
- **PSI/SI update according to the filtered services**
- **Service selection for DTTV network**
- **Multiple source support**



5 **ASIIPGuard** Seamless ASI switch | P.**56**
6 **IPGuardV2** Seamless IP switch | P.**57**

CONTENT REBROADCASTING SOLUTION

- **Multi-standard DTT signal rebroadcasting**
- **Dense solution** to deal with all DTT frequencies in 1U
- Applies for Regional **Cable head-ends** and **DVB-T TX sites**



PRODUCTS

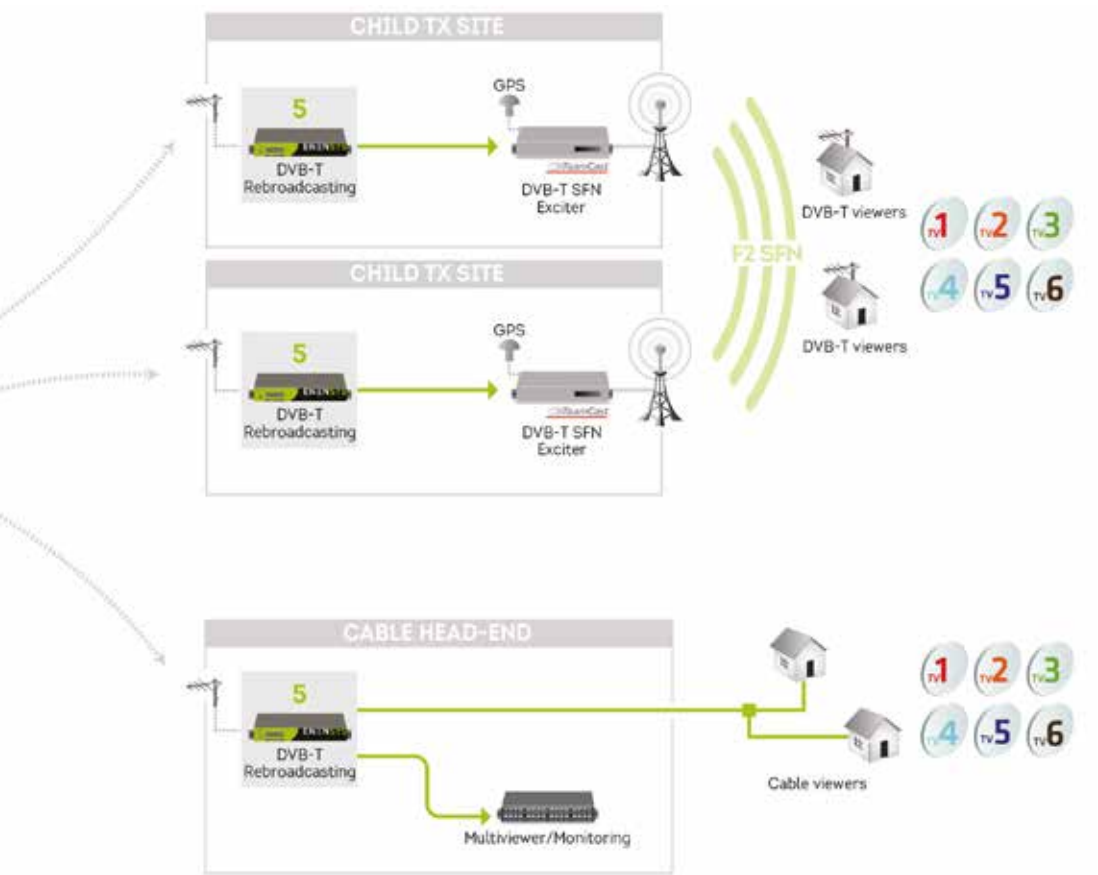
1	**MIPDVB** DVB-T SFN Adapter		P.**52**
2	**SFNguard** Seamless switch-over for T		P.**52**
3	**ASIIPGuard** Seamless ASI/IP switch		P.**56**
4	**IPGuardV2** Seamless IP switch		P.**57**

KEY BENEFITS

- High-grade broadcast equipment
- Lower CAPEX compared to satellite reception
- Optimize spectrum usage by enabling SFN rebroadcasting
- Flexible solution supporting DVB-T/T2/ISDB-T rebroadcasting in the same unit

KEY FEATURES

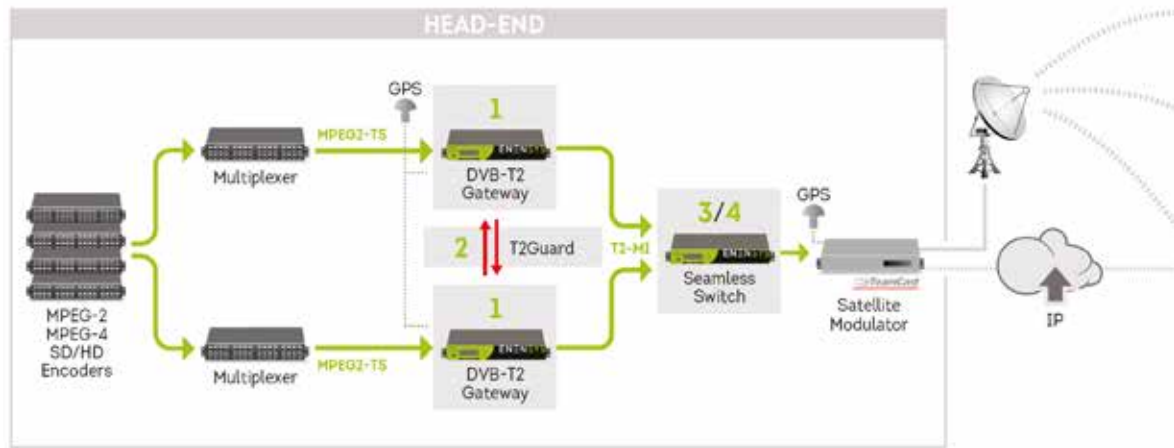
- DVB-T signal rebroadcasting
- Allow parent-child architecture with SFN preservation
- Support up to 24x frequencies the same chassis
- TS processing to enable service/PID filtering



5 **DTTCaster** DVB-T rebroadcasting | P.**55**

DVB-T2 AND SECURE SFN MANAGEMENT SOLUTION

- **Unique end-to-end solution** for efficient DVB-T2 broadcasting
- **Most advanced DVB-T2 solution** on the market
- Commercial roll-out **in largest DVB-T2 networks**



PRODUCTS

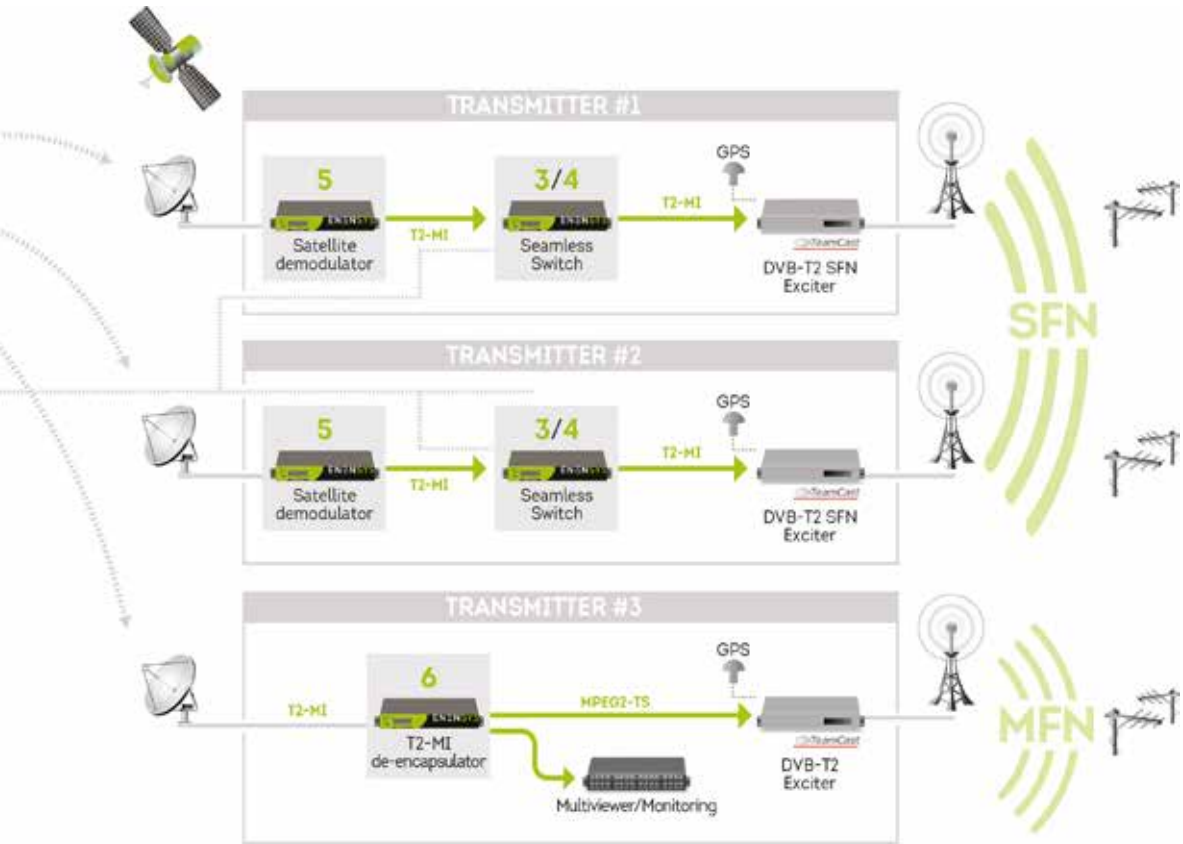
1	**T2Gateway** DVB-T2 Gateway		P.**47**
2	**T2Guard** Seamless switch-over for DVB-T2		P.**47**
3	**ASIIPGuard** Seamless ASI/IP switch		P.**56**
4	**IPGuardV2** Seamless IP switch		P.**57**

KEY BENEFITS

- Field proven and interoperable solution
- Flexible and scalable architectures
- One-stop-shop solution
- Secured investment in DVB-T2 system
- Simplified T2 network administration

KEY FEATURES

- Full support of DVB-T2/T2-Lite standard
- Uninterrupted service guaranteed
- DVB-T2 regional broadcasting with SFN preservation
- Compliant with full IP architecture

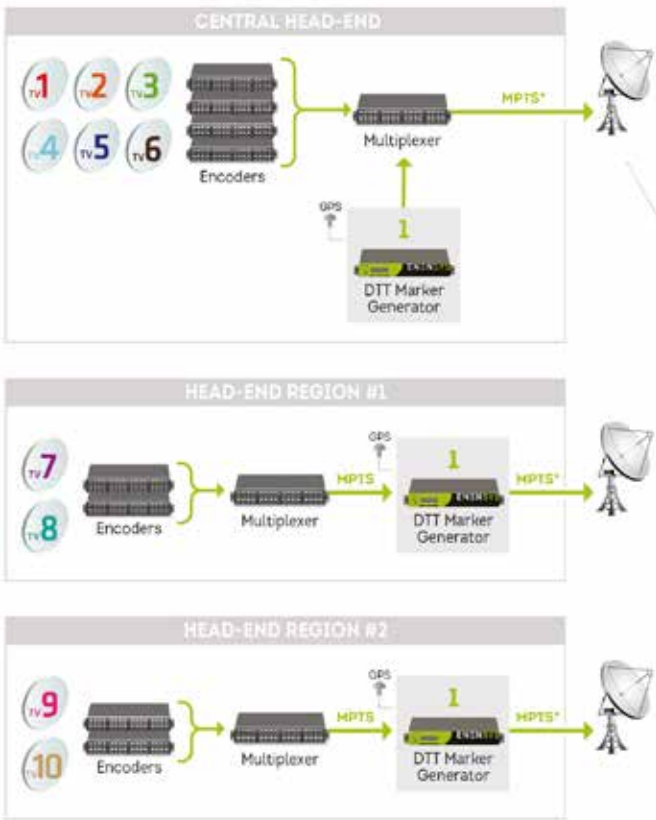


5 **SatCaster** Standalone DVB-S/S2 demodulator | P.**54**
6 **InverTS** T2-MI de-encapsulator | P.**48**

SINGLE ILLUMINATION SOLUTION
DVB-T2 WITH DTH CO-EXISTENCE

DTH + DVB-T2

- **Share satellite capacity** between DVB-T2 distribution and DTH
- Commercially rolled-out **in largest DVB-T2 networks**
- **Back-up DVB-T2 transmitter distribution** with DTH stream



PRODUCTS

1 **TxGateway** DVB-T2 Gateway for DTH | P.52

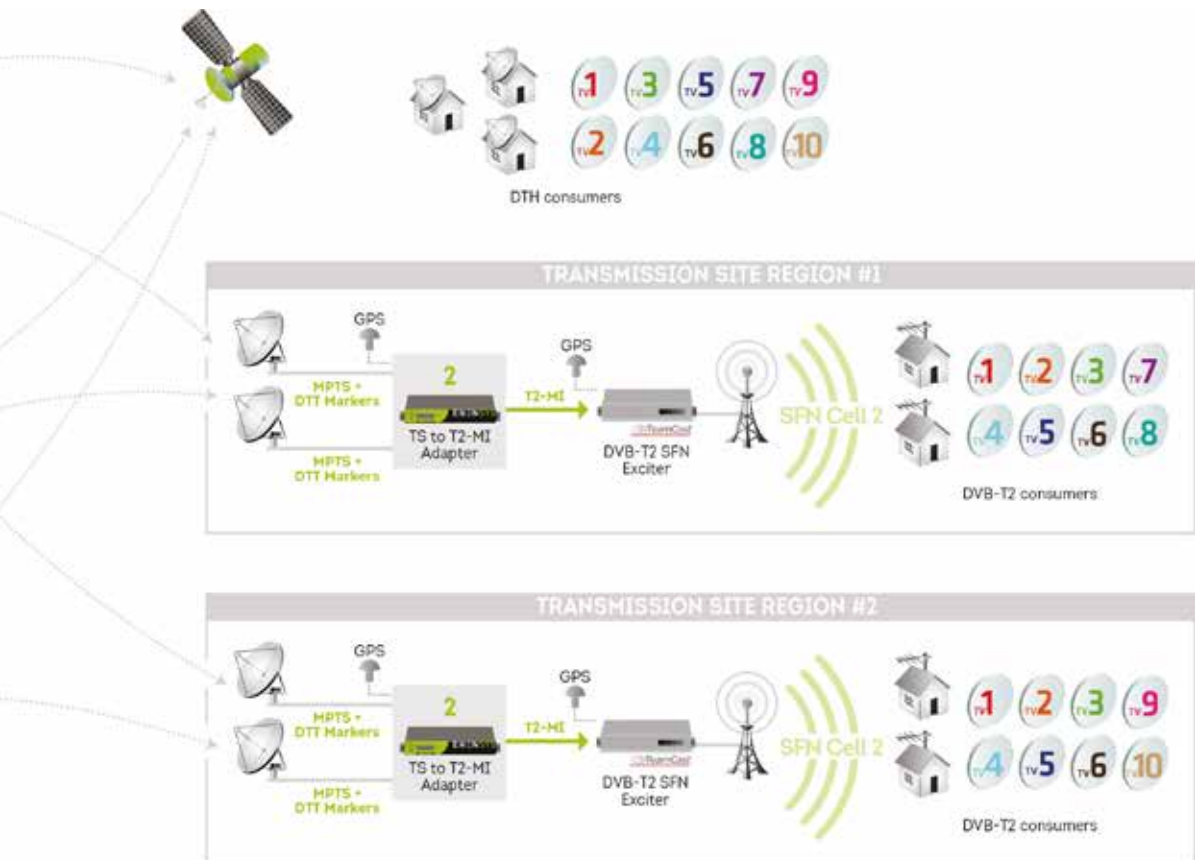
2 **TxEdge** TS to T2-MI Adapter | P.53

KEY BENEFITS

- No duplication of content over satellite network
- Regionalization management compatible
- Backup DTT distribution with DTH
- Emergency Warning System compatible
- DVB-T2 transmitter and receiver agnostic

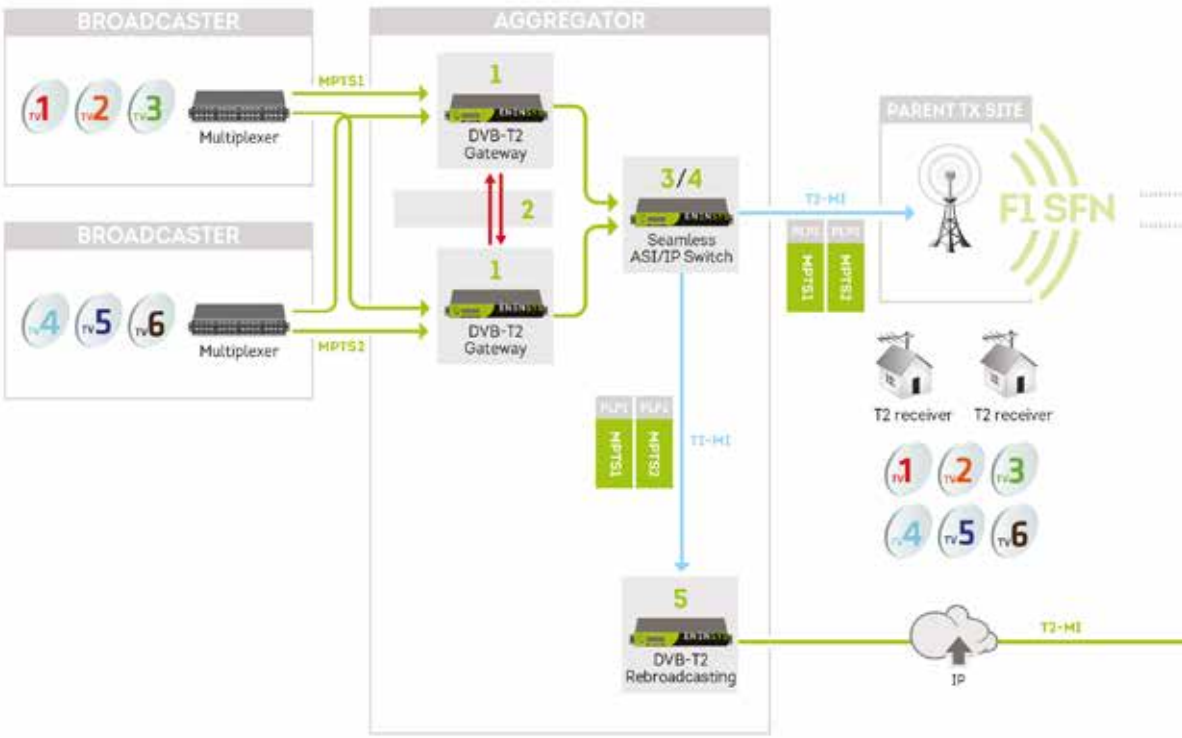
KEY FEATURES

- SFN broadcasting compliant
- No modification of A/V services
- Single PLP and Multiple PLP support
- Independency from content format (SD/HD/4K, MPEG2/H264, HEVC, ...)
- Service selection for DTTV network
- PSI/SI update according to filtered services
- Remote configuration and upgrade via in-band signal
- Building DTT MUX from several DTH sources



CONTENT REBROADCASTING SOLUTION

- **Unique SFN rebroadcasting solution** for DVB-T2
- **Dense solution** to deal with all DTT frequencies in 1U
- Applies for Regional **Cable head-ends** and **DVB-T2 TX sites**



PRODUCTS

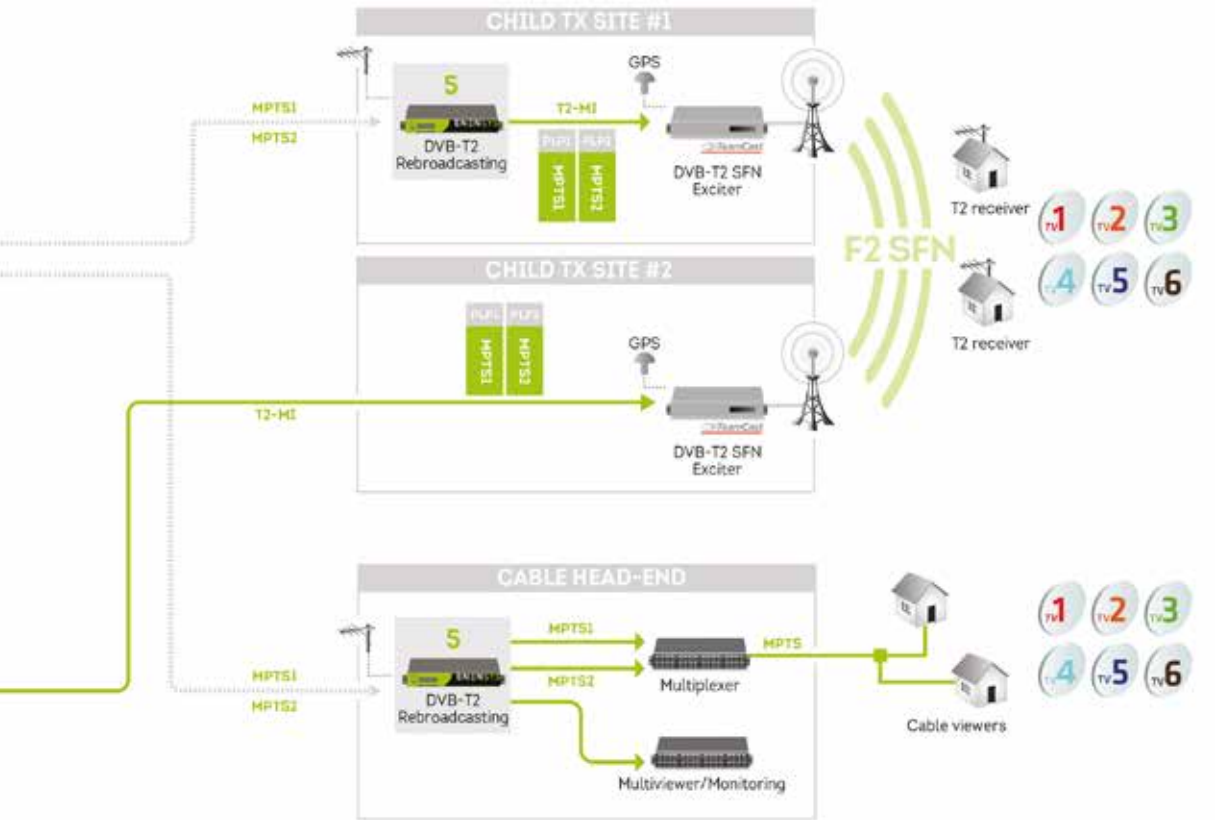
1 **T2Gateway** DVB-T2 Gateway	I P.**47**	3 **ASIIPGuard** Seamless ASI/IP switch	I P.**56**
2 **T2Guard** Seamless switch-over for T2	I P.**47**	4 **IPGuardV2** Seamless IP switch	I P.**57**

KEY BENEFITS

- High-grade broadcast equipment
- Lower CAPEX compared to satellite reception
- Optimize spectrum usage by enabling SFN rebroadcasting
- Multiplex sharing capable

KEY FEATURES

- Full support of DVB-T2/T2-Lite standard
- Multiple PLP rebroadcasting capable
- Allow parent-child architecture with SFN preservation
- Support up to 24x frequencies the same chassis
- TS processing to enable service/PID filtering

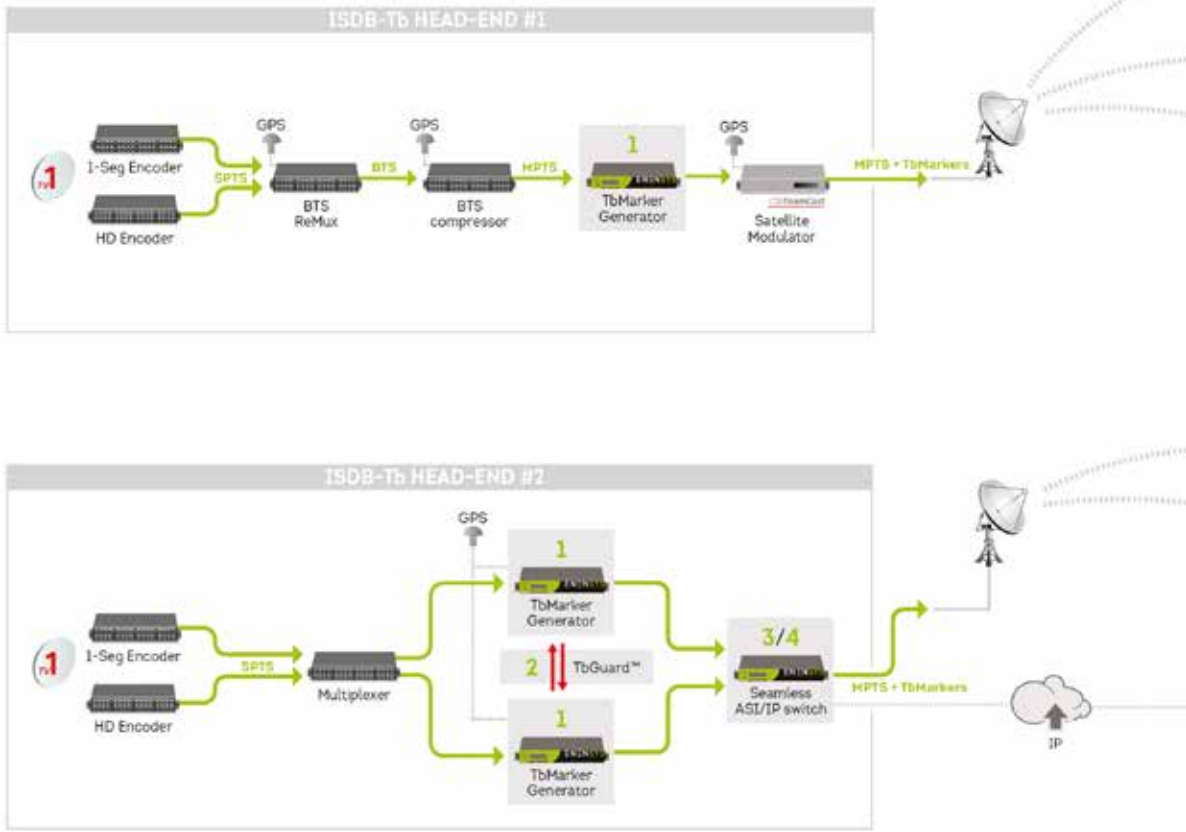


5 **DTTCaster** DVB-T2 rebroadcasting | P.**55**

ISDB-T/Tb AND SECURE SFN MANAGEMENT SOLUTION

- **Optimize satellite capacity** for ISDB-T distribution
- **Unique end-to-end solution** for efficient ISDB-T broadcasting
- SFN and MFN capable

ISDB-T



PRODUCTS

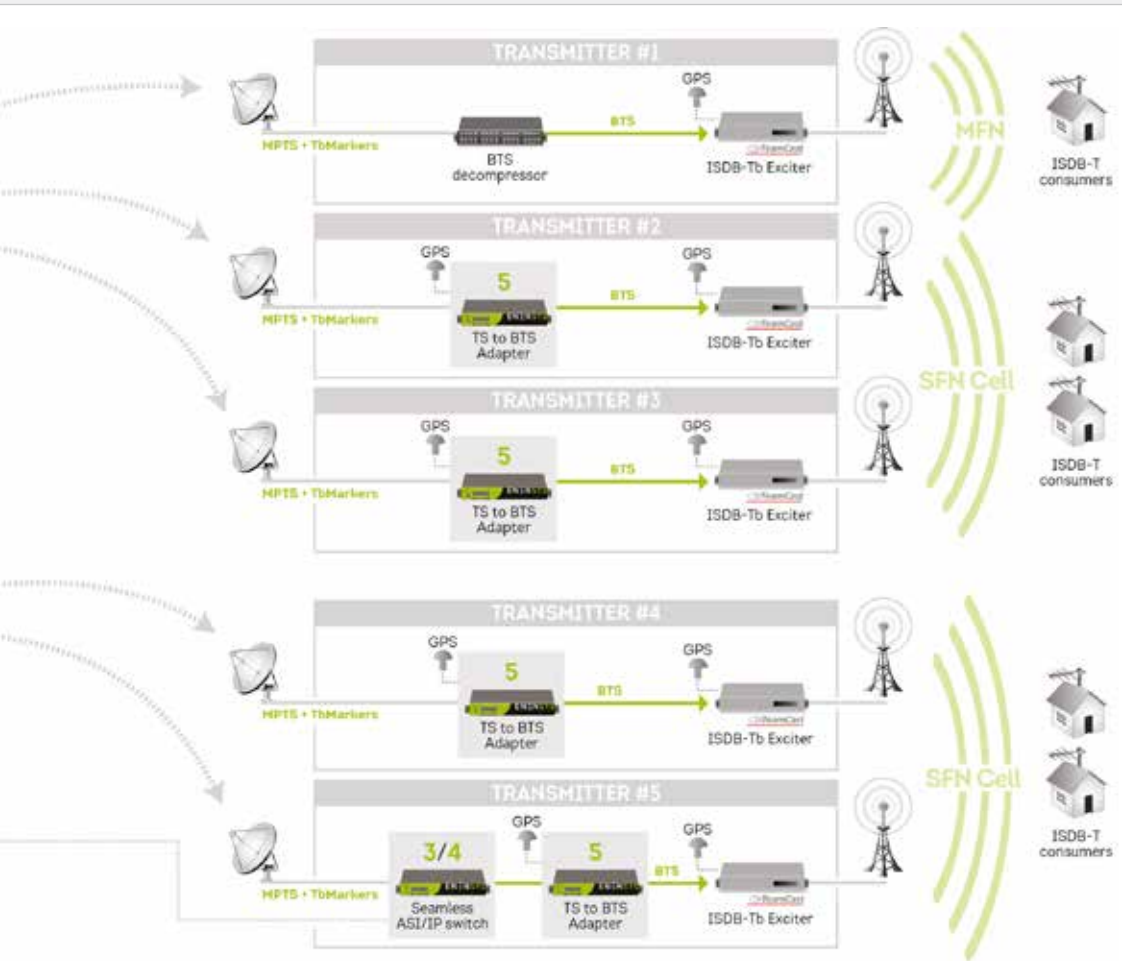
1 **TbGateway** TbMarker Generator in OneBeam solution | P.**50**
2 **TbGuard** 1+1 seamless change-over | P.**50**
3 **ASIIPGuard** 1+1 seamless ASI switch | P.**56**
4 **IPGuardV2** 1+1 seamless IP switch | P.**57**

KEY BENEFITS

- Bandwidth optimization to reduce annual OPEX
- Full support of ISDB-T/Tb standards
- Standard MPEG-2 TS delivered over satellite
- ISDB-T/Tb transmitter agnostic

KEY FEATURES

- BTS generation from a regular MPTS
- BTS compression/decompression
- Regionalization support
- Multi-Layer support
- Deterministic generation for SFN broadcasting
- Cost effective BTS generator for MFN site



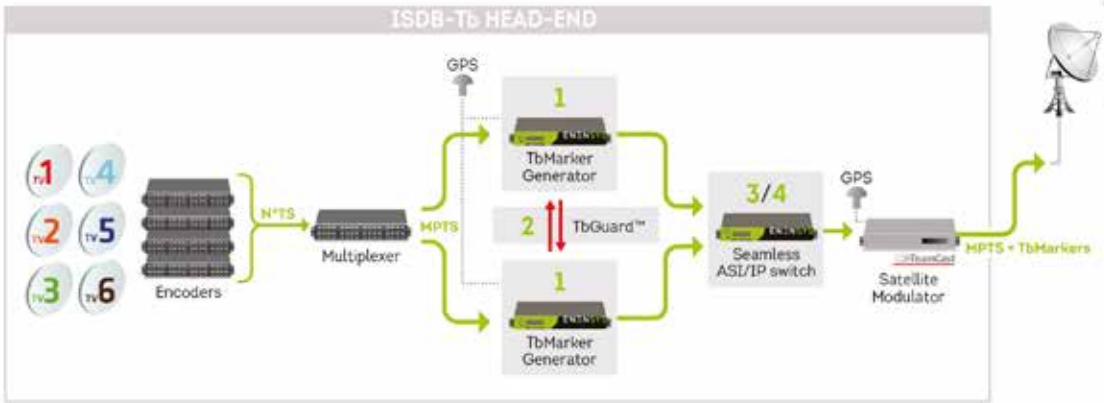
5 **TbEdge** BTS Generator in OneBeam solution | P.**50**

SINGLE ILLUMINATION SOLUTION
ISDB-T WITH DTH CO-EXISTENCE

DTH + ISDB-T

ISDB-T

- **Share satellite capacity** between ISDB-T distribution and DTH
- **Covering DTT black spots** with DTH stream
- **Back-up feed to DTT transmission sites** with DTH stream



PRODUCTS

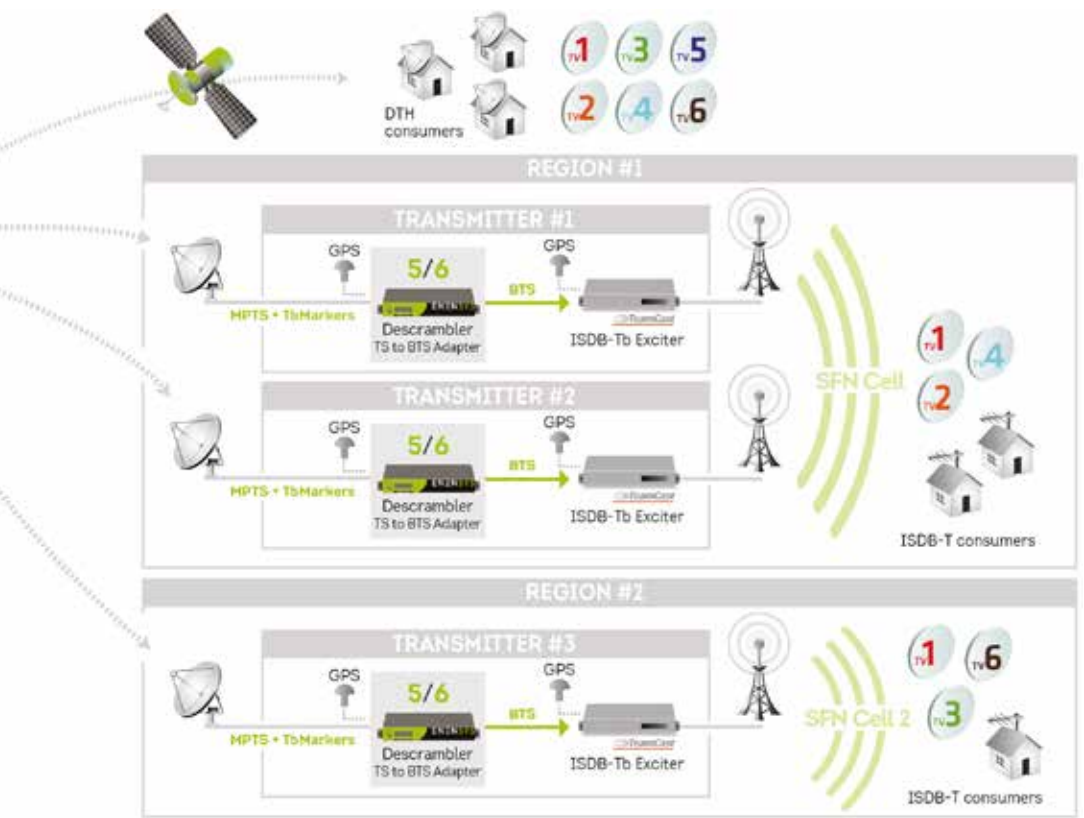
1	**TbGateway** ISDB-Tb/DTH Gateway	I P.**50**	3	**IPGuardV2** Seamless IP switch	I P.**57**
2	**TbGuard** 1+1 TbGateway redundancy	I P.**50**	4	**ASIIPGuard** Seamless ASI/IP switch	I P.**56**

KEY BENEFITS

- **Bandwidth optimization to reduce annual OPEX**
- **Very fast Return On Investment (ROI)**
- **Full support of ISDB-T/Tb standards**
- **Standard MPEG-2 TS delivered over satellite**
- **Reuse existing network equipment**
- **ISDB-T/Tb transmitter agnostic**

KEY FEATURES

- **No duplication of content over satellite**
- **BTS generation from a regular MPTS**
- **Selection of DTH services to build the DTT multiplex**
- **Regionalization support**
- **Multi-Layer support**
- **Deterministic generation for SFN broadcasting**

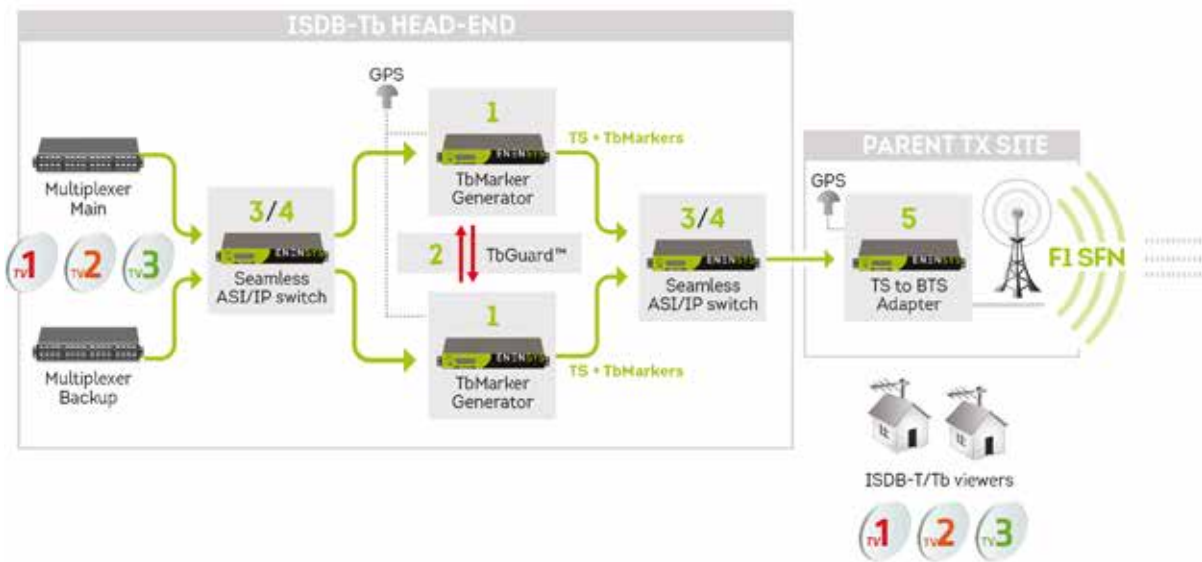


5 **TSDescrambler** Professional CA Descrambler | P.**55**
6 **TbEdge** DTH/TS to BTS Adapter | P.**50**

CONTENT REBROADCASTING SOLUTION

- **Optimize satellite capacity** for ISDB-T distribution
- **Unique end-to-end solution** for efficient ISDB-T broadcasting

ISDB-T



PRODUCTS

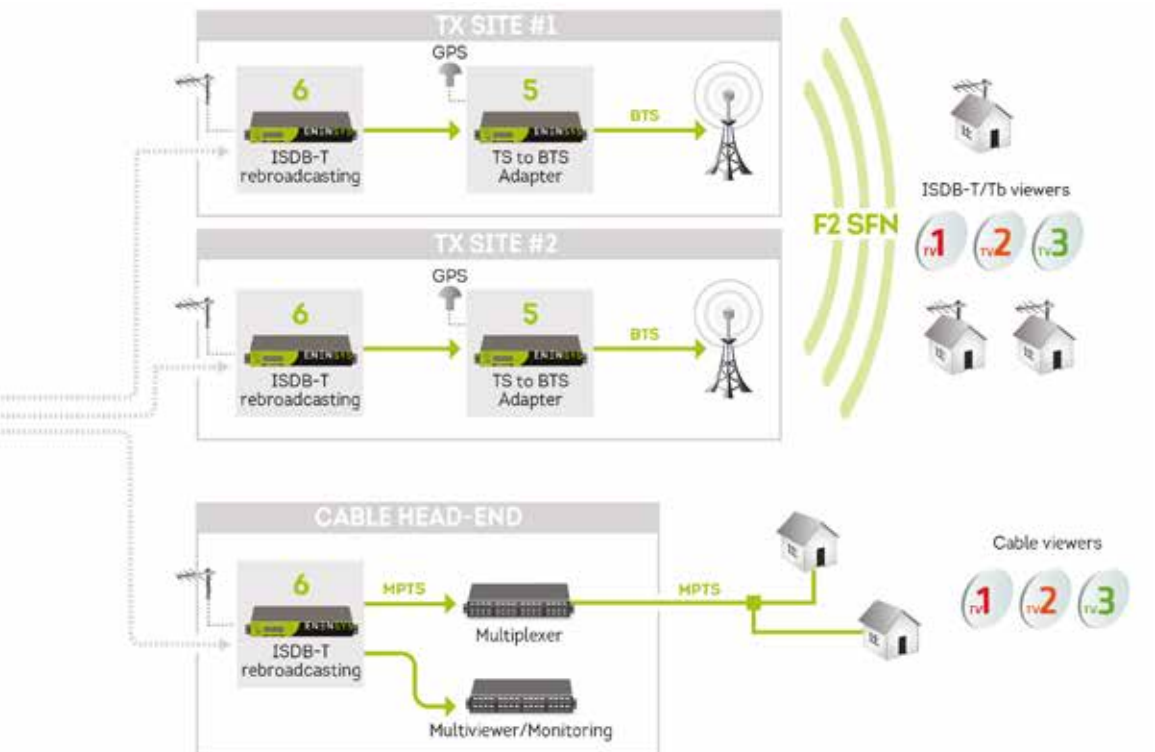
1	**TbGateway** ISDB-Tb Gateway	I P.**50**	3	**ASIIPGuard** Basic & Seamless ASI switch	I P.**56**
2	**TbGuard** 1+1 TbGateway redundancy	I P.**50**	4	**IPGuardV2** Basic & Seamless IP switch	I P.**57**

KEY BENEFITS

- Lower CAPEX compared to satellite reception
- Full support of ISDB-T/Tb standards
- ISDB-T/Tb transmitter agnostic

KEY FEATURES

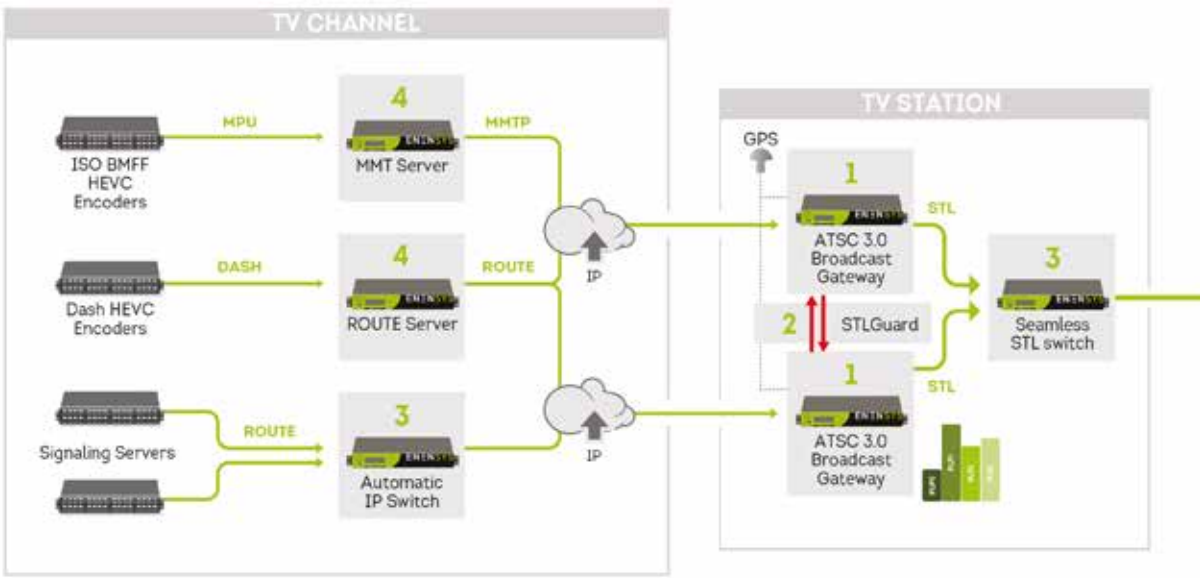
- BTS generation from a regular MPTS
- Multi-Layer support
- Deterministic generation for SFN broadcasting



5 **TbEdge** TS to BTS Adapter | P.**50**
6 **DTTCaster** ISDB-T rebroadcasting | P.**55**

ATSC3.0 DIGITAL TERRESTRIAL TV SOLUTION

- World's first ATSC broadcast gateway
- Reliable end-to-end SFN solution



PRODUCTS

1 **ATSCheduler** Broadcast ATSC 3.0 Gateway | P.60

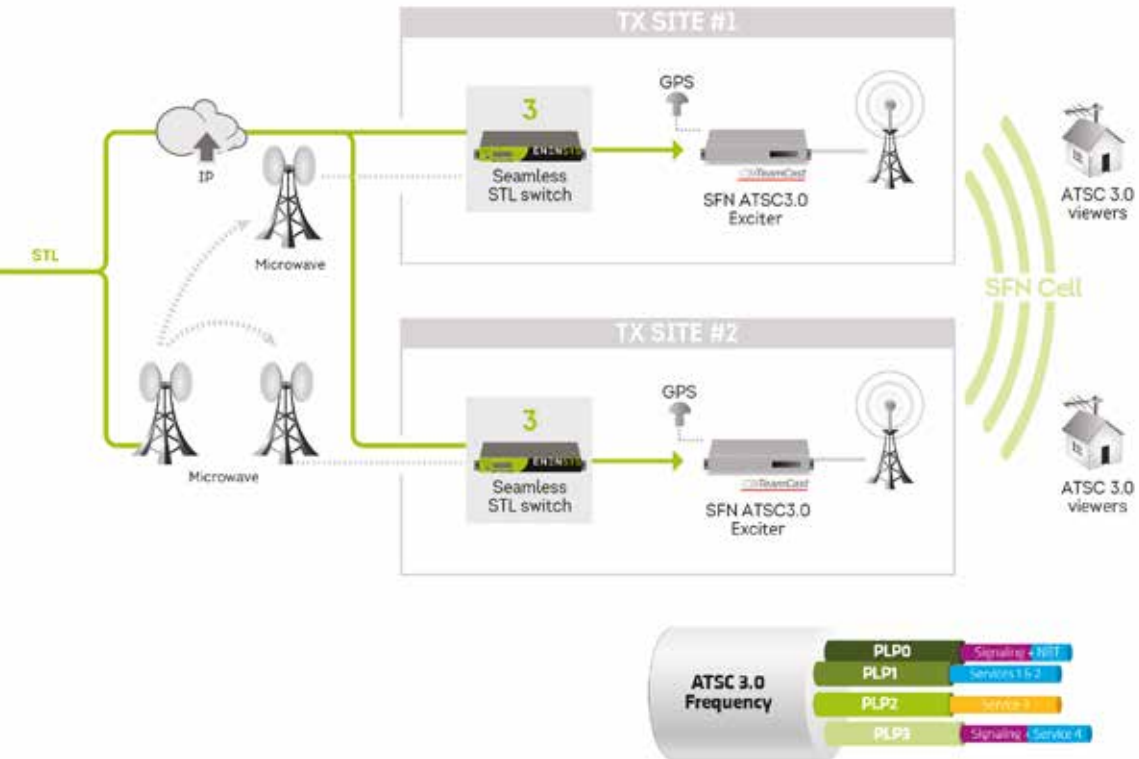
2 **STLGuard** 1+1 seamless redundancy | P.60

KEY BENEFITS

- High-grade broadcast equipment
- Flexible solution based on ATSC3.0 standard
- Dense solution, up to 3 Broadcast Gateway in 1U
- No TV black-out during change-over
- Uninterrupted service guaranteed

KEY FEATURES

- Synchronization and configuration of ATSC3.0 modulators for SFN and MPLP broadcasting
- Multiple PLP support (Up to x8)
- Flexible IP management
- ALP, BB Frames and STL encapsulation
- 1+1 Automatic IP redundancy
- SFN and STL seamless switch-over



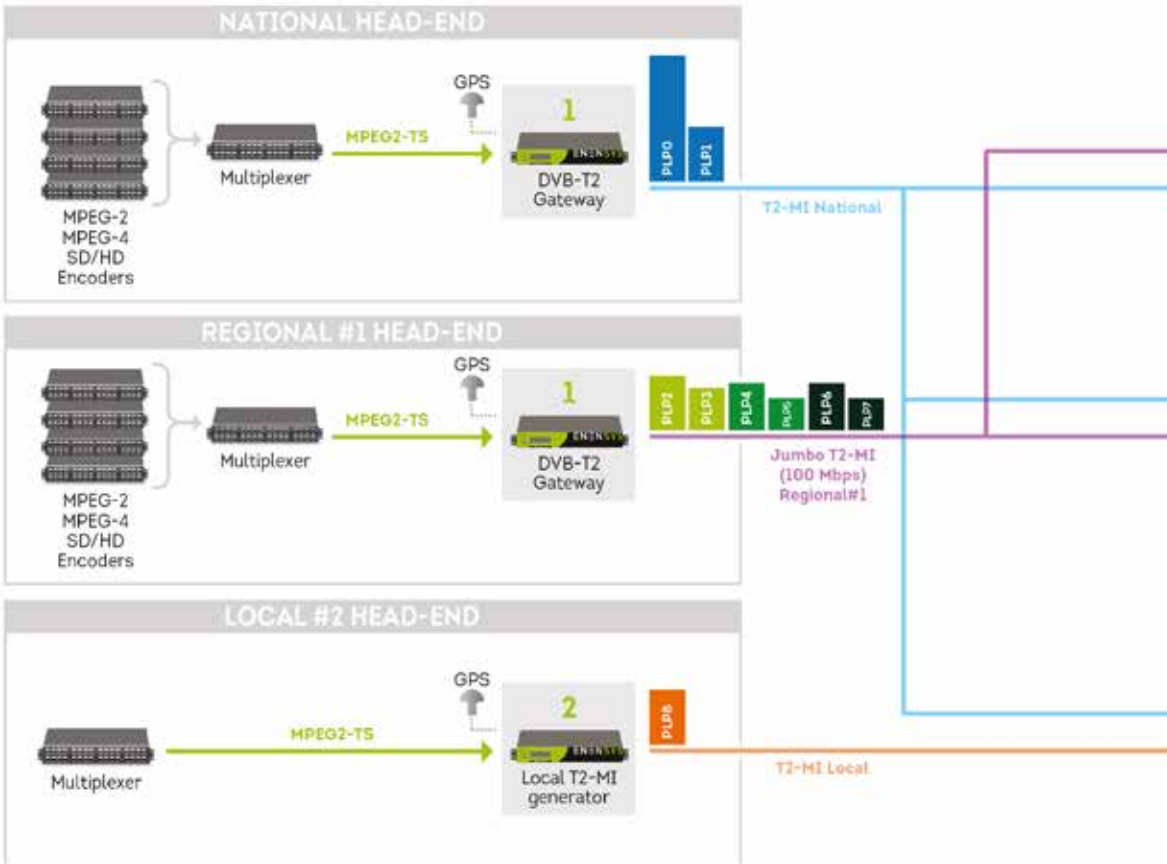
3 **IPGuardV2** Automatic IP and seamless STL switch | P.**57**

4 **ATSCaster** Files delivery server over ROUTE or MMT | P.**60**

SOLUTIONS

DTTV CONTENT REGIONALIZATION SOLUTION

- **Deterministic local TV insertion** to enable SFN broadcasting
- **Reduce OPEX cost** by delivering shared content only once
- Commercial roll-out **in largest networks**



PRODUCTS

1 **T2Gateway** DVB-T2 Gateway | P.47

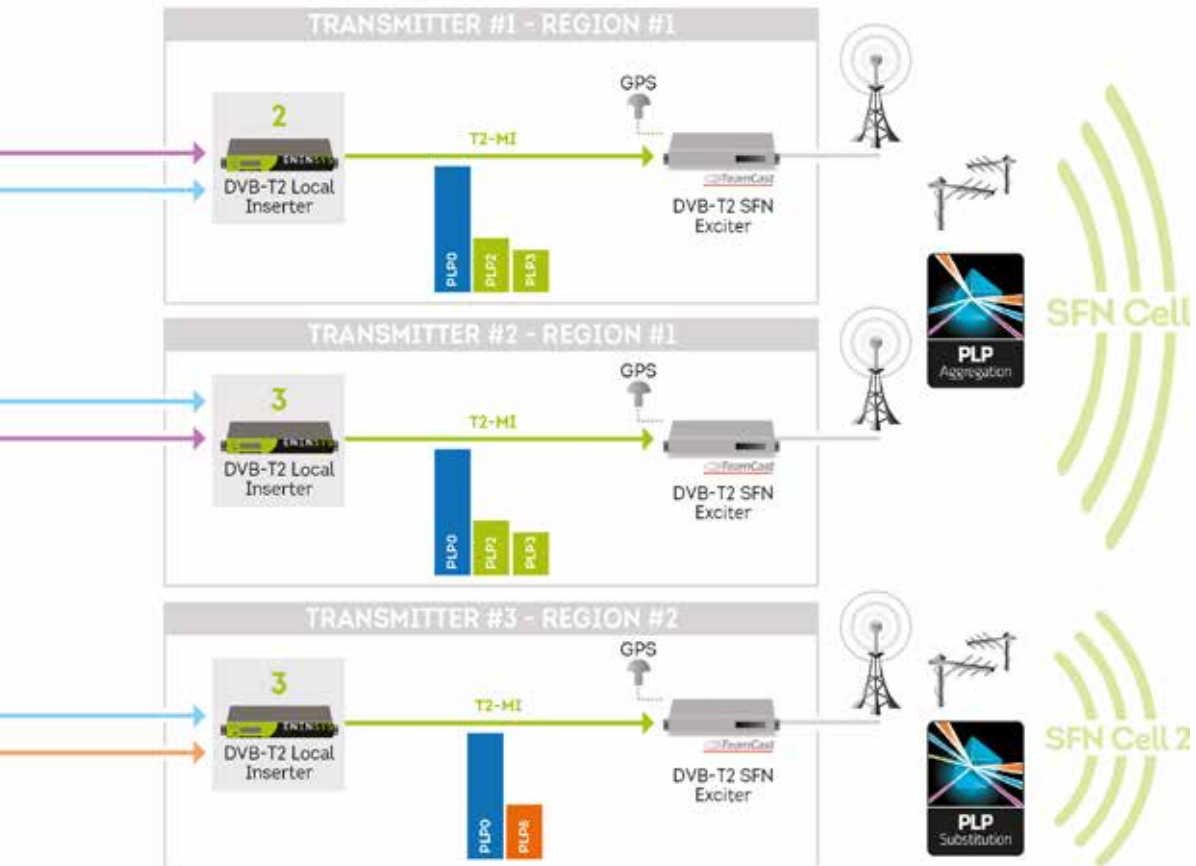
2 **T2-MIGen** Local T2-MI generator | P.48

KEY BENEFITS

- Enable local content insertion over DVB-T2 SFN networks
- Field proven and interoperable solution
- Flexible and scalable architectures
- Spectrum efficiency optimization
- Emergency Warning System compatible
- Future proof solution

KEY FEATURES

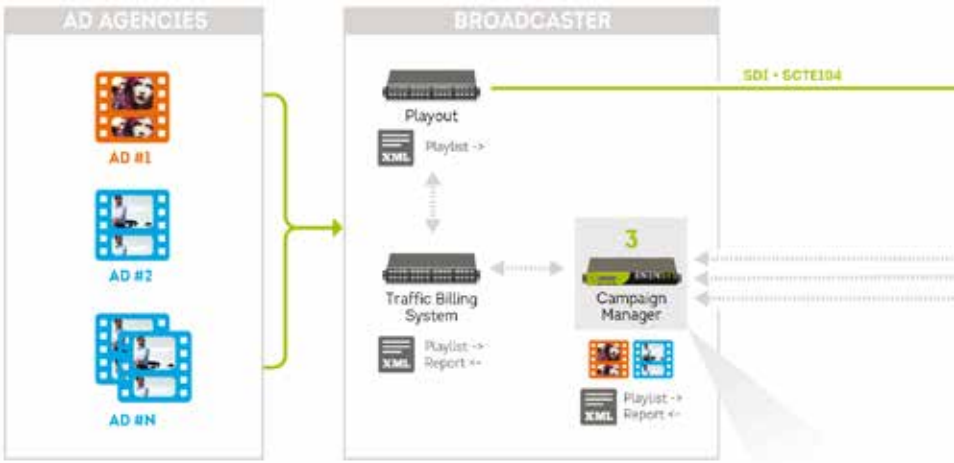
- Distribution network bandwidth optimization
- Full support of DVB-T2 standard
- Uninterrupted service guaranteed
- Regional broadcasting with SFN preservation
- Insertion of targeted advertisement
- Jumbo-T2MI to support higher T2-MI bit rate



3 **T2Edge** DVB-T2 Local inserter | P.**49**

TARGETED CONTENT INSERTION SOLUTION

- **Monetize your TV content** and **engage your audience**
- **Insertion of any local TV content** : Ads, News, Weather,...
- **Targeted TV insertion** for DTT and cable networks



PRODUCTS

1 **MIPDVB** DVB-T SFN Adapter | P.**52**

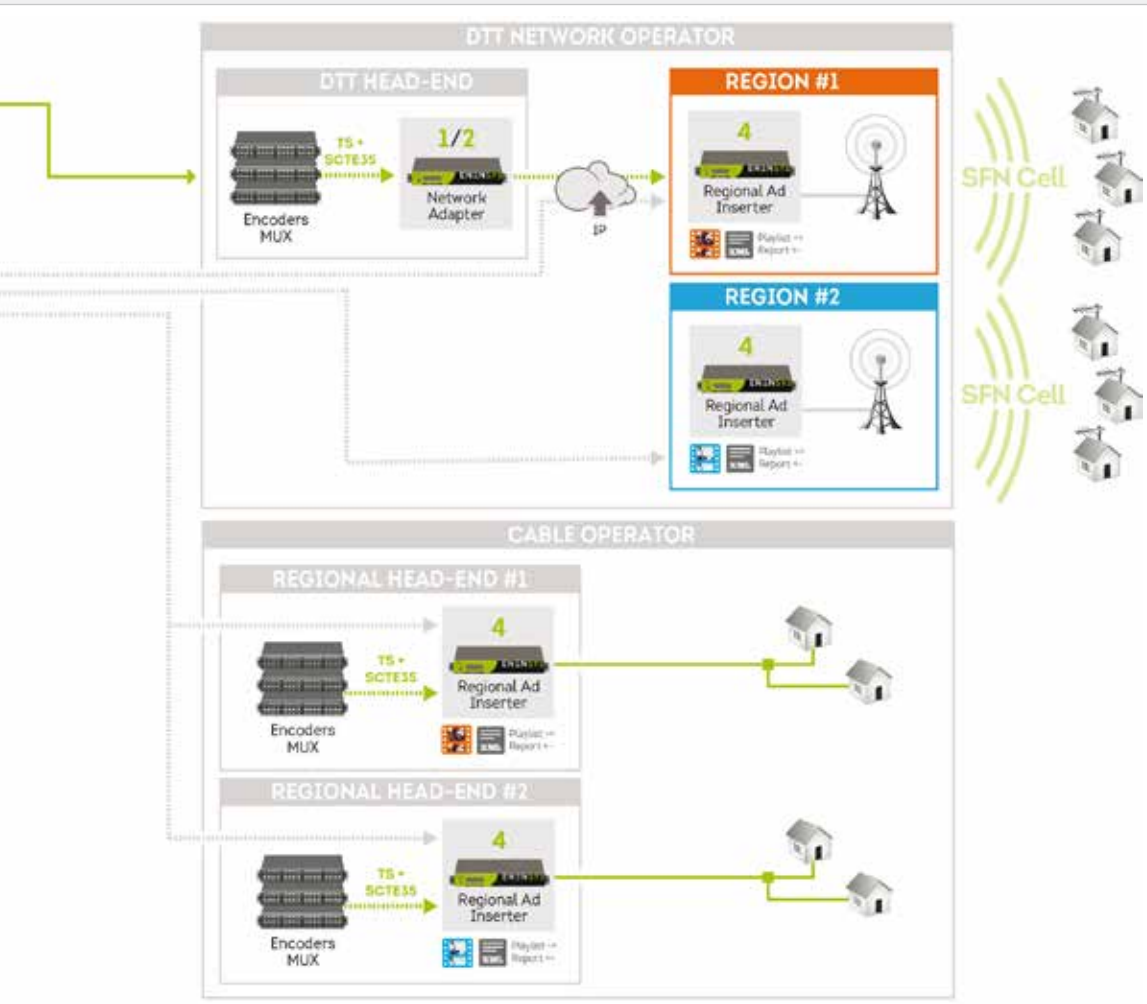
2 **T2Gateway** DVB-T2 Gateway | P.**47**

→ KEY BENEFITS

- Ad Server and Splicer in a single box
- Ad Splicer & server in a single box
- Generate additional revenues
- Industry-standard SCTE interfaces
- STB or iDTV receiver agnostic
- Multi-standard capable (T/T2/ISDB-T, ATSC, DVB-C)

→ KEY FEATURES

- Insertion upon reception of cue messages SCTE-35
- Multiple PLP support in DVB-T2
- SFN capable for DTT operation
- Various files delivery support to store schedules (SCTE-118-3) and spots (MPEG-2, MPEG-4, HEVC)
- AsRun logs generation and delivery



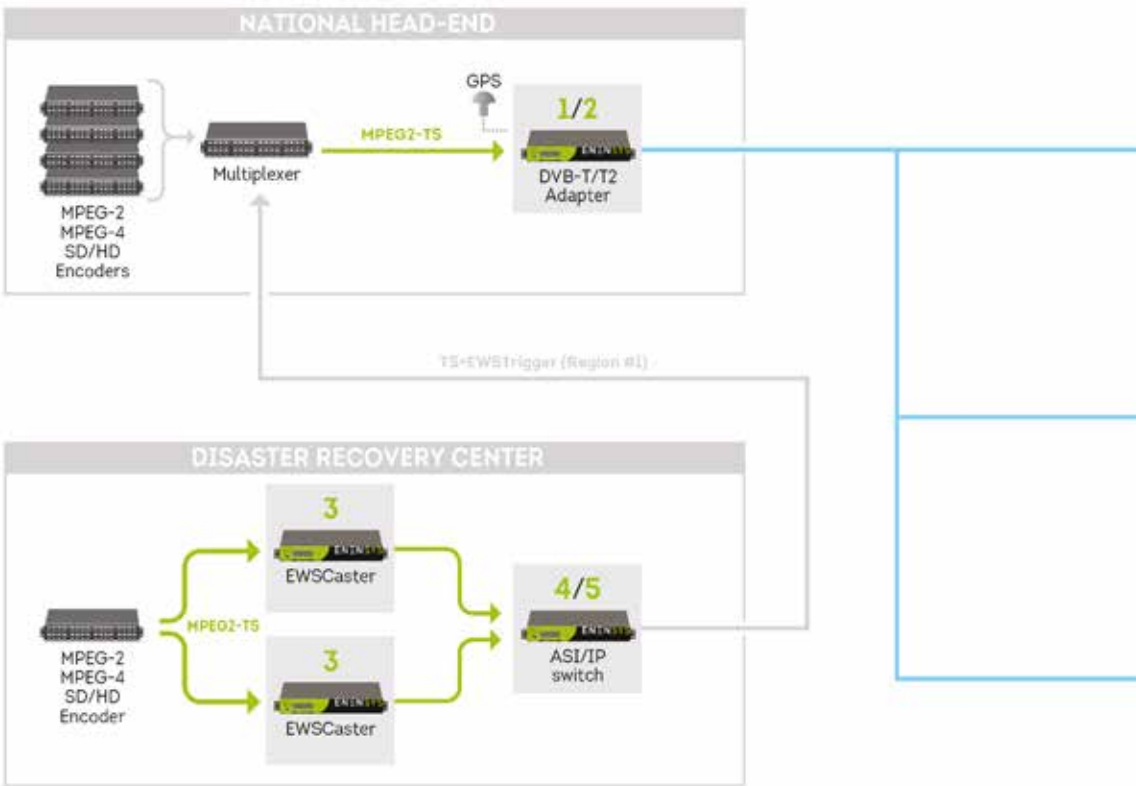
3 **Campaign Manager** AdsEdge Asset Management | P.**58**

4 **AdsEdge** Targeted TV content insertion | P.**59**

REGIONAL EMERGENCY WARNING SOLUTION

EMERGENCY WARNING SYSTEM

- **Alert to national or regional audience any immediate dangers**
- **Receiver agnostic solution**
- Commercially deployed **in DVB-T/T2 SFN networks**



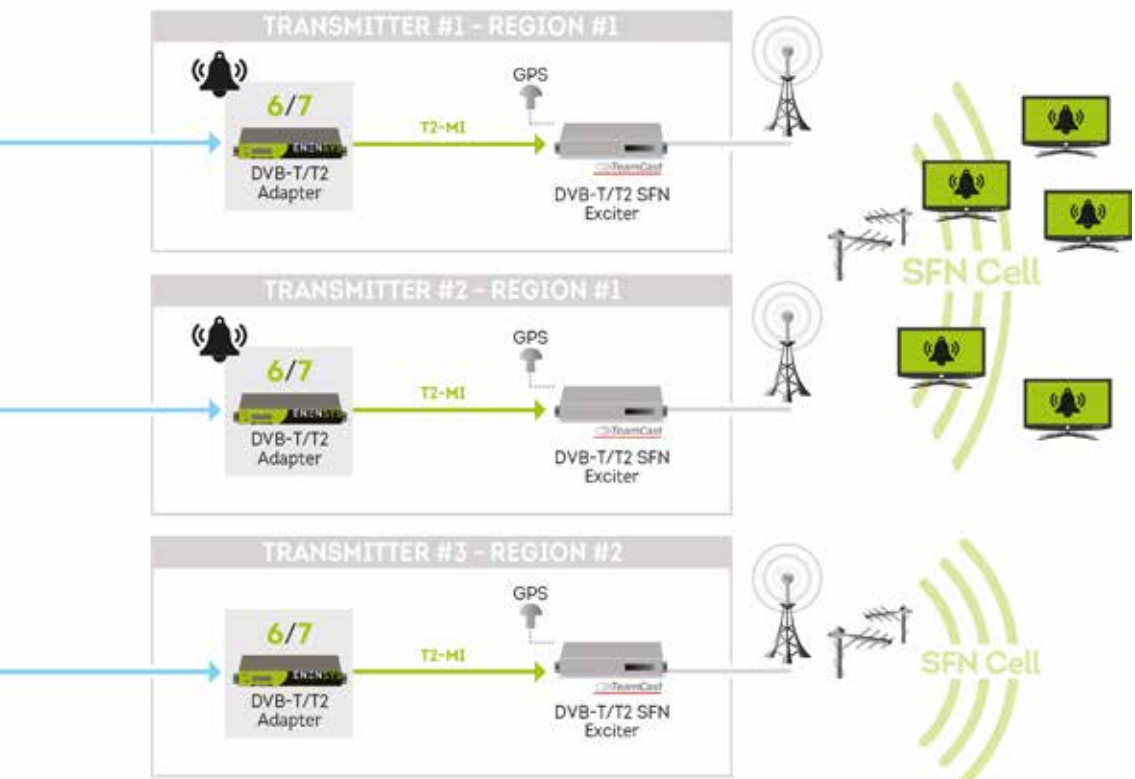
PRODUCTS

KEY BENEFITS

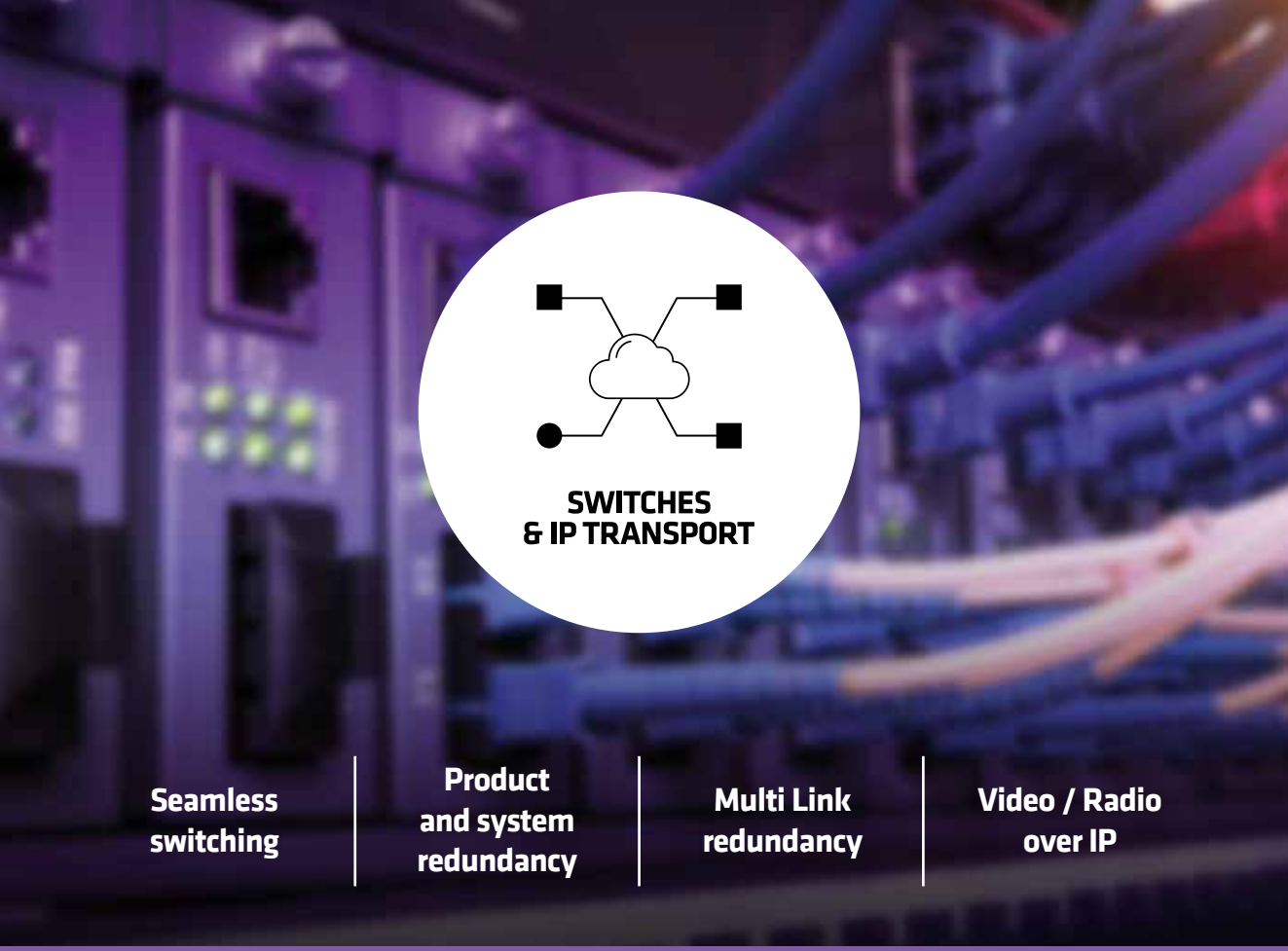
- Uses standard receivers - no specific implementation or middleware required
- Regional alert support
- SFN broadcast support
- Use visual and audio information to reach the largest possible audience
- Can be used as an add-on of the Enensys regionalization or OneBeam solution
- Field proven solution
- Multi-standard applicable (DVB-T/T2)

KEY FEATURES

- Video based Emergency Warning System
- Regionalisation support (rEWS™)
- SI/PSI independent to guarantee EWS Alert delivery
- Transmitter agnostic
- Broadcast-grade products
- Straight integration into any NMS



5 **IPGuardV2** Automatic IP switch | P.**57**
6 **TxEdge** TS to DVB-T/T2 adapter | P.**53**
7 **T2Edge** DVB-T2 Local inserter | P.**49**



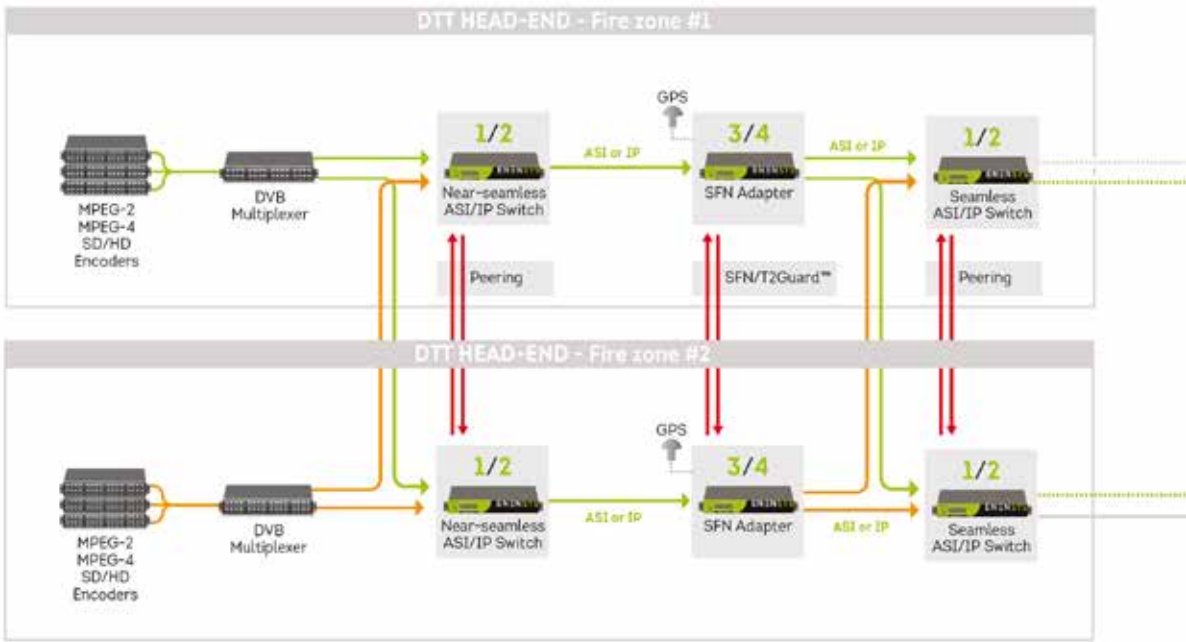
SWITCHES & IP TRANSPORT

Seamless switching | **Product and system redundancy** | **Multi Link redundancy** | **Video / Radio over IP**

SOLUTIONS

SEAMLESS SFN SWITCH SOLUTION

- **Reliable end-to-end SFN solution**
- **SFN seamless switch-over** to avoid TV black-out
- **Multi-standard applicable** (DVB, ATSC, ISDB)



PRODUCTS

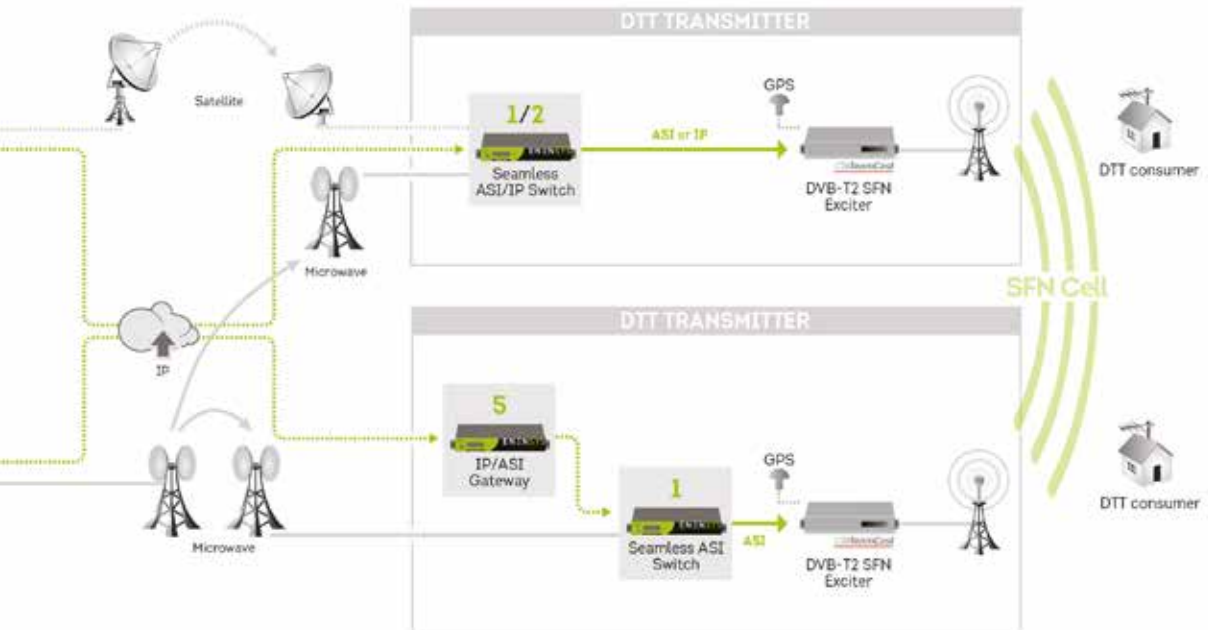
1	**ASIIPGuard** Basic & Seamless ASI switch	I P.**56**	3	**MIPDVB** DVB-T SFN Adapter	I P.**52**
2	**IPGuardV2** Basic & Seamless IP switch	I P.**57**	4	**T2Gateway** DVB-T2 Gateway	I P.**47**

→ KEY BENEFITS

- **Avoid TV blackout**
- **SFN network preservation with seamless switching**
- **Suitable for any DTT standard**
- **Ensure 100% service availability**
- **Synchronize head-ends on different locations**

→ KEY FEATURES

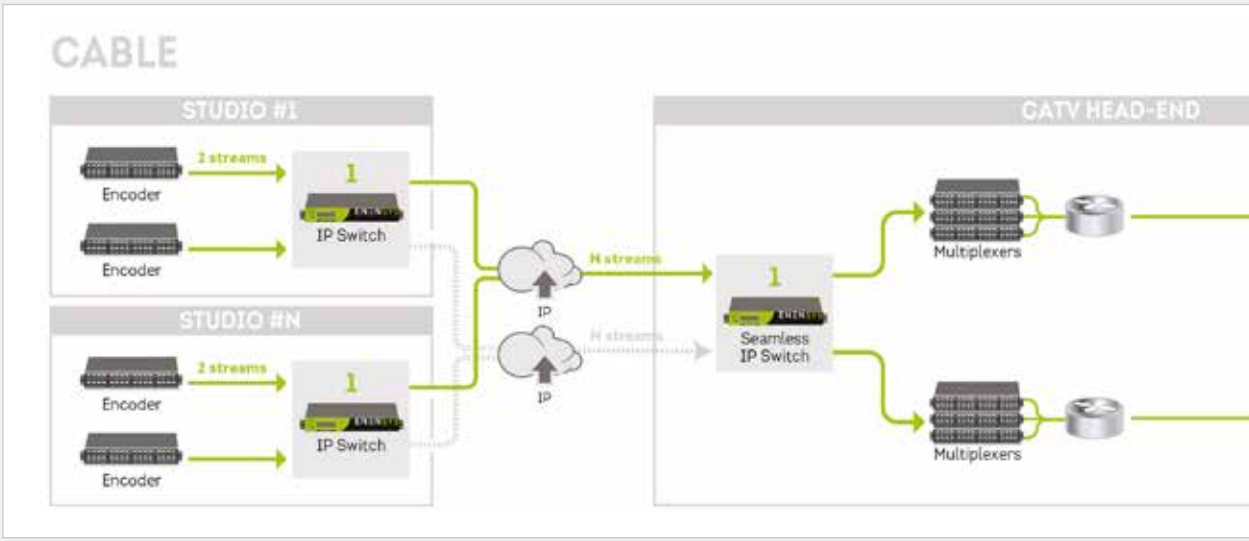
- **SFN Seamless switch-over**
- **2:1 and 3:1 ASI/IP redundancy**
- **Peering feature**
- **Specific criteria for each DTT standard**

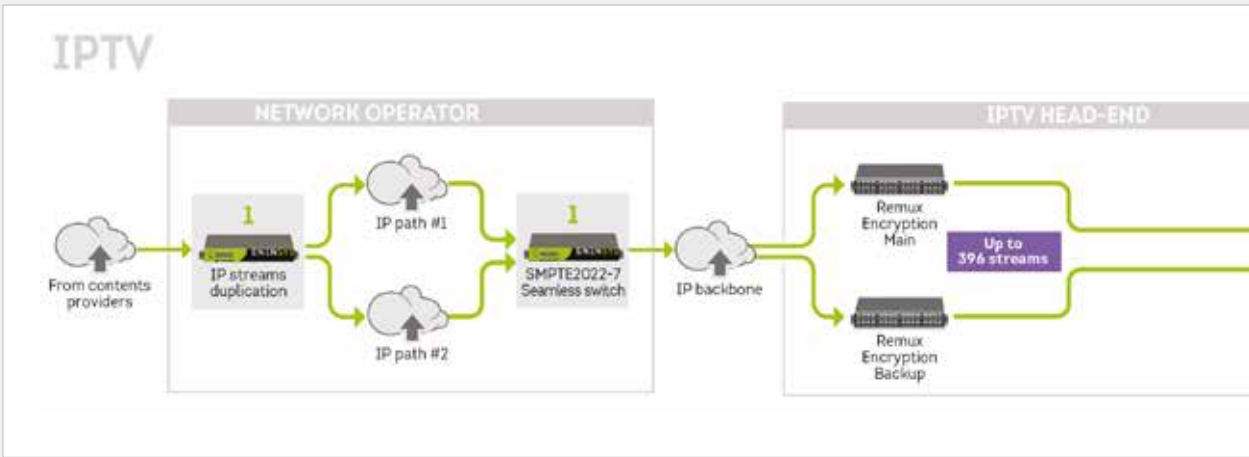


5 **GigacasterII** TS over IP Gateway | P.**51**

IP RELIABILITY FOR EQUIPMENT AND NETWORKS SOLUTION

- **Suitable solution for DTT, CATV, IPTV environment**
- **Redundancy of equipment** based on advanced audio and video criteria
- **Network seamless redundancy**





PRODUCT

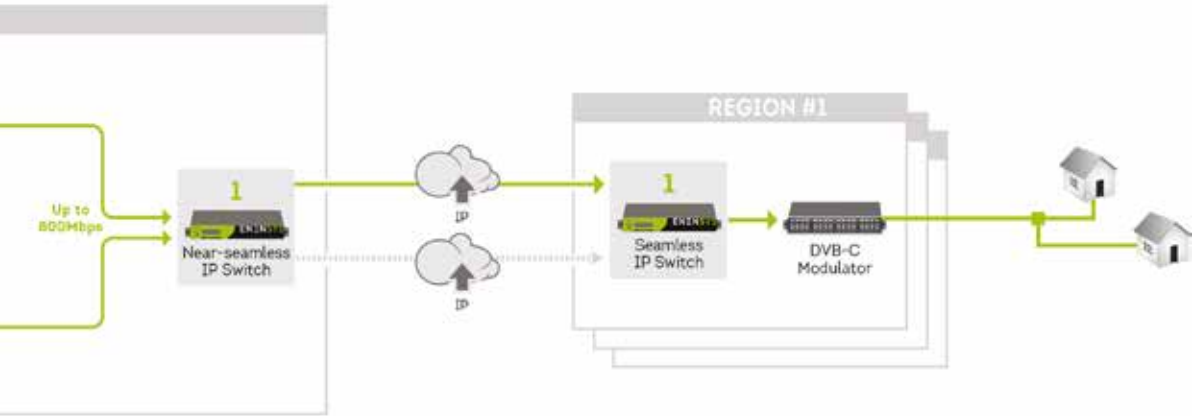
1 **IPGuardV2** Basic & Seamless IP switch | P.**57**

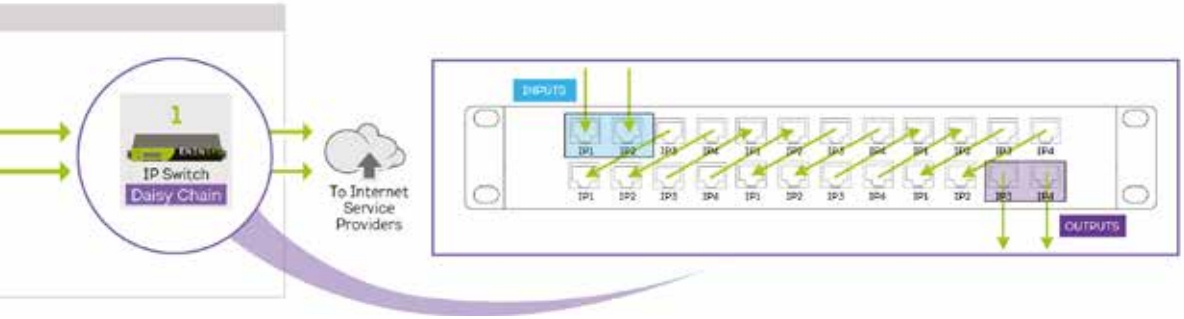
→ KEY BENEFITS

- Manage IP-based equipment outage
- Secure transport over IP links
- Cope with jittered & unreliable network links
- Scalable & evolutive solution

→ KEY FEATURES

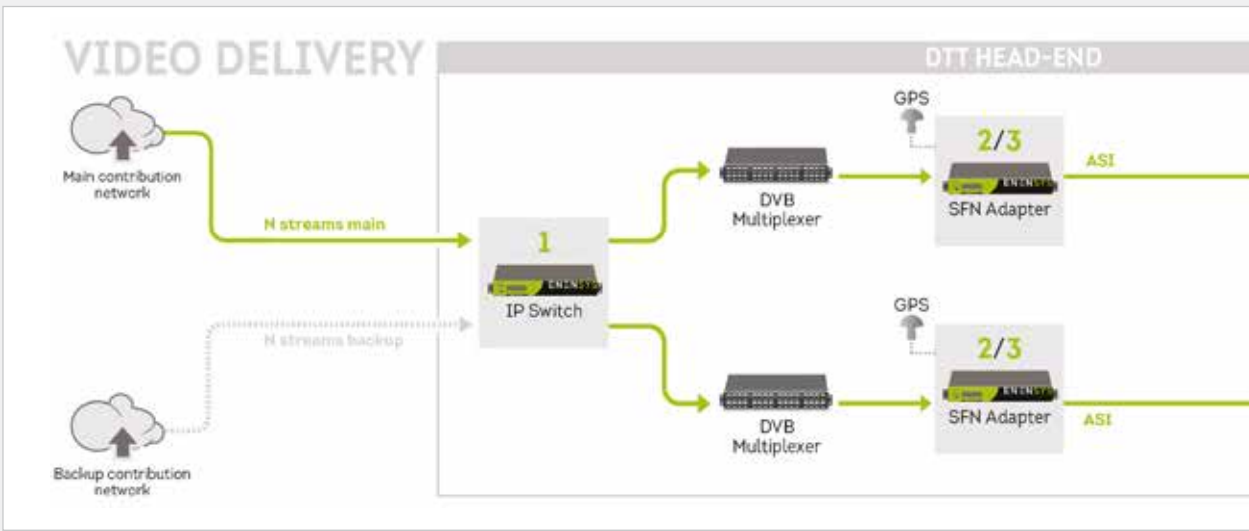
- Automatic switch-over between IP-based equipment
- ETR290 1/2/3 and advanced switching conditions
- Seamless switch-over with delayed sources
- IP jitter removal & packet losses recovery
- High density solution

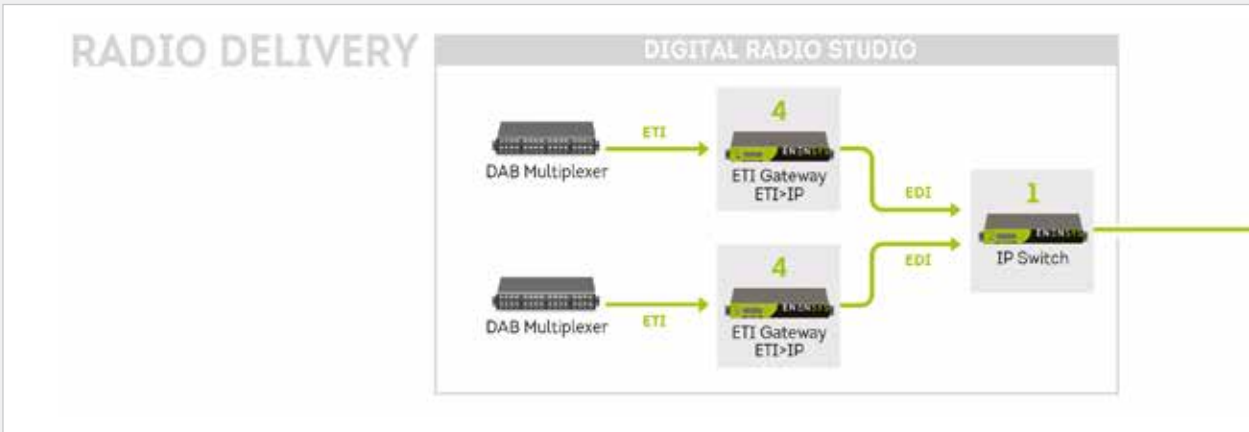




VIDEO AND RADIO DELIVERY OVER IP SOLUTION

- **Reliable video and radio content distribution** over IP networks
- **Uninterrupted service guaranteed**
- **Easy to setup and more cost effective** than traditional solutions





PRODUCTS

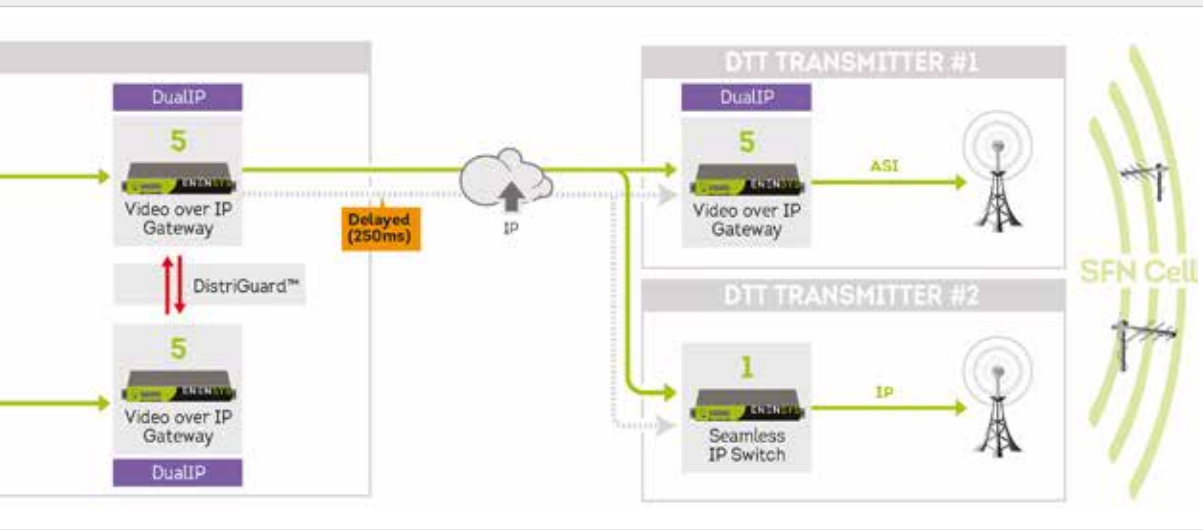
1	**IPGuardV2** Basic & Seamless IP switch	I P.**57**	3	**T2Gateway** DVB-T2 Gateway	I P.**47**
2	**MIPDVB** DVB-T SFN Adapter	I P.**52**	4	**GigaCaster DMB** ETI over IP Gateway	I P.**58**

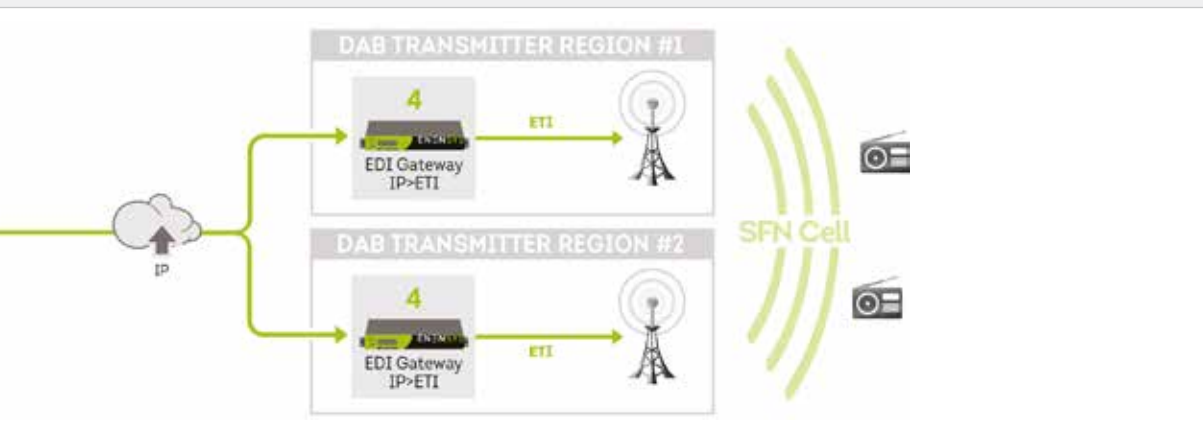
→ KEY BENEFITS

- **Uninterrupted service guaranteed**
- **SFN Network preservation**
- **Decrease OPEX efficiently**
- **Safe Radio over IP transport**

→ KEY FEATURES

- **Automatic switch-over between IP-based equipment**
- **Distribution & contribution links securization**
- **Support EDI and ETI for DAB/DAB+/DMB infrastructures**
- **SFN preservation with or without external clock reference**
- **IP jitter removal & packet losses recovery**





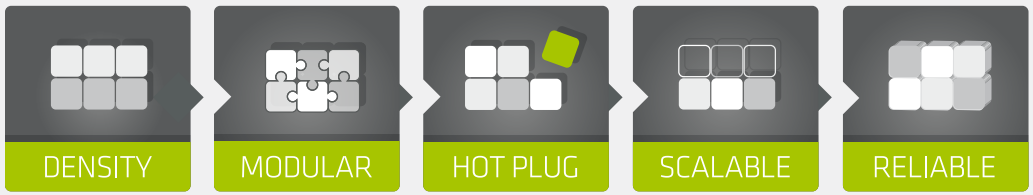
5 **GigaCaster II** Multiple Distribution over IP | P.**51**

PRODUCTS

HDc

MULTI

The ENENSYS Networks broadcast products run as independent modules in the High Density chassis (HDc) 19'' 1RU to provide:



HIGH DENSITY
Up to 6 products in the same chassis

MODULARITY
Combining different kind of products (T2Edge, TxEdge, ASIIPGuard, NetMod) in the same chassis

STRAIGHT FORWARD MAINTENANCE
All products are hot swappable and may be automatically configured

SCALABILITY
Start with one product and upgrade with additional products later

RELIABILITY
Hot plug and independent products with redundant power supply in 220V or 48V

ORDERING CODES

HDc-Multi-220V		High Density chassis with 220V input
HDc-Multi-48V		High Density chassis with 48 input
Options	**HDcMulti-In220VRedundant**	110V/220V redundant power supply
	HDcMulti-In48VRedundant	48V DC redundant power supply

T2Gateway for HDc: DVB-T2 Gateway (T2-base or T2-lite)

TECHNICAL CHARACTERISTICS

Inputs / outputs
- 1x Gigabit control port for GUI/SNMP (from chassis)
- 2x ASI inputs and 2x ASI outputs
- 4x additional ASI inputs (Option)
- Up to 4x Gigabit data ports from the chassis /the module (Option)
- 1x TNC input antenna for internal GPS clock (Option)
- 1x PPS input

Featuring
- Encapsulation into DVB-T2 baseband frames
- T2-lite and T2-base support
- L1-post scrambling support
- In-band type A and B signalling
- DVB-T2 SFN Adaption with MISO support
- Relative and absolute timestamp support
- T2MIP generation for SFN rebroadcasting
- Multiple PLP support (2 by default, 4 and 8 as option)
- Individual addressing of T2 transmitters
- Future Extension Frame (FEF) broadcasting
- Powerful 1+1 and N+1 seamless redundancy (T2Guard) over IP (Option)
- Flexible IP inputs/outputs management (Option)
- Possible redundant IP inputs with mirrored IP outputs
- In-band configuration and firmware update delivery
- Generation of T2-MI packets over ASI and IP (Option)
- Validation of DVB-T2 transmission parameters
- Full SNMPv2 support

ORDERING CODES

HDm-T2Gateway		DVB-T2 Gateway module with 2PLP with 2x ASI inputs and 2x ASI outputs
Options	**T2Gateway-IP**	IP input/output from the module (add 2x Gigabit Ethernet data ports - use one more slot)
	T2Gateway-IPc	IP input/output from the chassis (use 2x Gigabit Ethernet data ports of the chassis)
	T2Gateway-MPLP4	Management of up to 4 PLP
	T2Gateway-MPLP8	Management of up to 8 PLP
	T2Gateway-4ASI+	4 additional ASI inputs (use one more slot – not compliant with T2Gateway-IP option)
	T2Guard	1+1 and N+1 seamless redundancy
	T2Gateway-InBand	In-band configuration and firmware delivery
	T2Gateway-JumboT2MI	Enable T2-MI stream with higher bit rate
	NN6-GPSv2	Built-in GPS receiver

T2-MIGen T2-MI Generation for local head-end

TECHNICAL CHARACTERISTICS

Inputs / outputs
- 1x Gigabit control port for GUI/SNMP (from chassis)
- 2x ASI inputs and 2x ASI outputs
- 2x Gigabit data ports from the chassis (Option)
- 1x TNC input antenna for internal GPS clock (Option)
- 1x PPS input

Featuring
- Encapsulation into DVB-T2 baseband frames
- T2-base support (T2-lite as an option)
- DVB-T2 SFN timestamp generation
- Up to 2 PLP support (Option)
- FEF broadcasting (Option) for T2-lite and T2-base broadcasting
- Generation of T2-MI packets over ASI and IP
- Validation of DVB-T2 transmission parameters
- Easy-to-use web based GUI
- Full SNMPv2 support

ORDERING CODES

HDm-T2MIGen		T2-MI Generator with 2x ASI inputs and 2x ASI outputs
Options	**Multi-PLP-2**	Management of up to 2 PLP (use 2x Gigabit Ethernet data ports of the chassis)
	T2MIGen-IP	IP input/output management from the chassis
	T2MIGen-FEF	FEF generation
	T2MIGen-T2Lite	T2-lite support
	T2MIGen-AdvMonitoring	Enabling PLP monitoring T2 parameters
	NN6-GPSv2	Built-in GPS receiver

InverTS for HDc: Reverse DVB-T2 Gateway (T2-MI to TS)

TECHNICAL CHARACTERISTICS

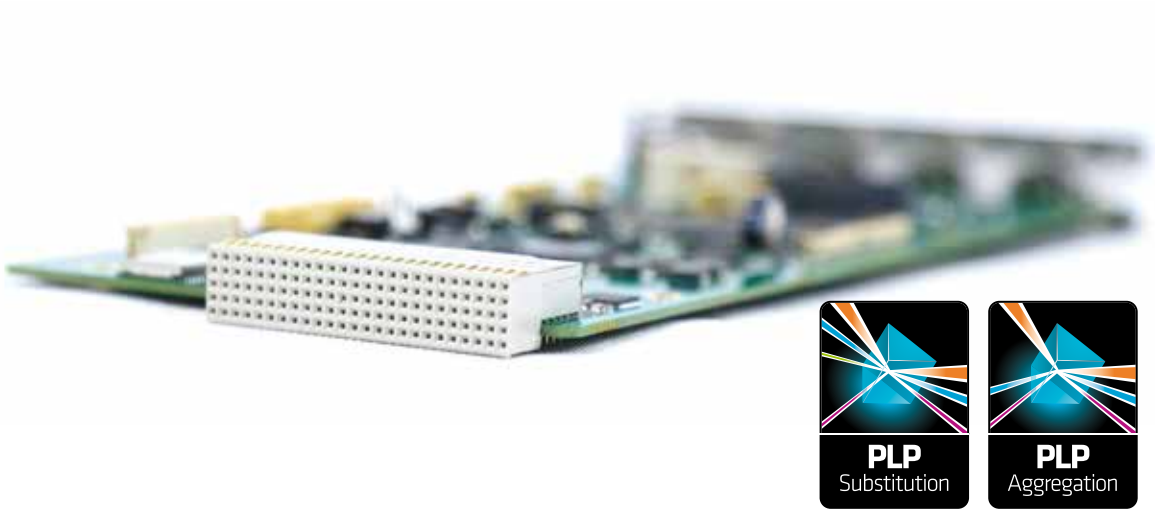
Inputs / outputs
- 1x Gigabit control port for GUI/SNMP (from chassis)
- 2x redundant ASI inputs
- 1x DVB-S/S2 input (Option)
- 2x Gigabit data ports from the module (Option)
- 2x ASI outputs

Featuring
- De-encapsulation of 1x T2MI stream into up to 8x TS
- Single and Multiple PLP (Option) management
- PLP allocation and L1 signalling monitoring (Option)
- Display TS structure within the T2-MI stream
- ASI inputs/outputs by default
- IP inputs/outputs as option
- Satellite input as option
- Output one or several MPEG-2 TS over ASI and IP
- Easy-to-use web based GUI
- Full SNMPv2 support

ORDERING CODES

HDm-InverTS		Reverse DVB-T2 Gateway with 2x ASI inputs and 2x ASI outputs
HDmSat-InverTS		Reverse DVB-T2 Gateway with 2x ASI input/output and 2x DVB-S/S2 satellite inputs (Up to 32 ASPK) – one active
Options	**InverTS-MPLP-2**	Management of up to 2 PLP
	InverTS-MPLP-4	Management of up to 4 PLP
	InverTS-MPLP-8	Management of up to 8 PLP
	InverTS-IP	IP inputs/outputs (add 2x gigabit Ethernet data port – use one more slot)
	InverTS-IPc	IP input/output from the chassis (use 2x Gigabit Ethernet data ports of the chassis)
	InverTS-AdvMonitoring	Advanced monitoring of T2-MI input
	InverTS-InBand	In-band firmware update and configuration
	InverTS-DualT2MI	Add a second T2-MI de-encapsulation
	InverTS-BISS	BISS-1 descrambling

T2Edge for HDc: DVB-T2 local adapter



TECHNICAL CHARACTERISTICS

Inputs / outputs
- 1x Gigabit control port for GUI/SNMP (from chassis)
- Up to 2x ASI inputs and 2x ASI outputs
- Up to 4x Gigabit data ports from the chassis/the module (Option)
- 2x DVB-S/S2 input (Option)

Featuring
- Regional DVB-T2 multiplex creation at the DTT transmitter using PLP substitution (default) or PLP aggregation (option)
- Deterministic PLP multiplexer to enable SFN broadcasting
- EWS solution interoperable with any receivers
- Unmatched DVB-SI processing to update service information related to the local services
- Statistical Multiplexing enabler for local content
- Transmitter agnostic
- Bypass mode to guarantee service availability in case of power outage
- Cost-effective solution by integrating DVB-S/S2 satellite input
- DTH to T2-MI adapter ready (OneBeam option)
- In-band configuration and firmware update capable (Option)
- Generation of T2-MI packets over ASI and IP
- Easy-to-use web based GUI
- Full SNMPv2 support

ORDERING CODES

HDm-T2Edge		DVB-T2 local adapter module with PLP substitution with 2x ASI in and 2x ASI out
HDmSat-T2Edge		DVB-T2 local adapter module with PLP substitution with 2x ASI inputs/outputs and 2x DVB-S/S2 satellite inputs (Up to 32 ASPK) – one active
Options	**OptiPLP**	Insertion with PLP aggregation
	T2Edge-SIUpdate	Update SI data with new services
	T2Edge-IP	IP input/output from the module (add 2x Gigabit Ethernet data ports - use one more slot)
	T2Edge-IPc	IP input/output from the chassis (use 2x Gigabit Ethernet data ports of the chassis)
	T2Edge-DualSat	Second DVB-S/S2 satellite input on HDmSat-T2Edge
	T2Edge-DTH	Upgrade to DTH-T2MI adapter
	T2Edge-EWS	EWS solution management
	T2Edge-Bypass	Bypass to always output main input
	T2Edge-InBand	In-band firmware update and configuration
	T2Edge-JumboT2MI	Enabling T2-MI stream with higher bit rate

TbGateway BTS Gateway for ISDB-Tb head-end

TECHNICAL CHARACTERISTICS

Inputs / outputs
- 1x Gigabit control port for GUI/SNMP (from chassis)
- 2x ASI inputs and 2x ASI outputs
- Up to 4x Gigabit Ethernet data ports from the chassis/module (Option)
- 4x additional ASI inputs (Option)
- 1x TNC input antenna for internal GPS clock (Option)
- 1x PPS input

Featuring
- BTS generation at the head-end – standalone mode
- BTS generation at the TX site – OneBeam mode (Option)
- Combining DTH and DTT services
- Enabling regionalization
- TbMarkers generation to enable remote BTS generator, TbEdge, broadcasting over SFN
- In-band configuration to fully control TbEdge
- Multi-layer support
- Seamless 1+1 redundancy (patented technology)
- Individual control of transmitters

ISDB-T

ORDERING CODES

HDm-TbGateway		TbGateway module with 2xASI inputs and 2x ASI outputs
Options	**TbGateway-IP**	IP input/output from the module (add 2x Gigabit Ethernet data ports - use one more slot)
	TbGateway-IPc	IP input/output from the chassis (use 2x Gigabit Ethernet data ports of the chassis)
	TbGuard	1+1 seamless redundancy option for TbGateway (MFN and SFN)
	TbGateway-OneBeam	Tb markers and in-band configuration generation to enable remote TbEdge delivering BTS
	NN6-GPSV2	Internal GPS receiver option
	TbGateway-InBand	In-band firmware delivery

TbEdge BTS generation at the TX site

TECHNICAL CHARACTERISTICS

Inputs / outputs
- 1x Gigabit control port for GUI/SNMP (from chassis)
- Up to 2x ASI inputs and 2x ASI outputs
- Up to 4x Gigabit Ethernet data ports from the chassis /module (Option)
- 2x DVB-S/S2 input (Option)

Featuring
- BTS generation for SFN or MFN broadcasting
- MPTS input and BTS output
- Multi-Layer management
- TMCC and IIP data insertion
- Service filtering and mapping
- PSI/SI update and generation (PAT,PMT, SDT, NIT)
- SFN compliant

ISDB-T

ORDERING CODES

HDm-TbEdge		Local BTS adapter module with 2x ASI inputs and 2x ASI outputs
HDmSat-TbEdge		Local BTS adapter module with 2x DVB-S/S2 Satellite inputs (up to 32 APSK) - one active and 2x ASI inputs/outputs
Options	**TbEdge-IP**	IP input/output from the module (add 2x Gigabit Ethernet data ports - use one more slot)
	TbEdge-IPc	IP input/output from the chassis (use 2x Gigabit Ethernet data ports of the chassis)
	TbEdge-OneBeam	Enable deterministic BTS generation from TbMarkers
	TbEdge-BISS	BISS-1 descrambling
	TbEdge-DualSat	Enable the second DVB-S/S2 satellite input on HDmSat-TbEdge
	TbEdge-InBand	In-band firmware update

GigaCaster II TS over IP Gateway

TECHNICAL CHARACTERISTICS

Inputs / outputs
- 2x Gigabit Ethernet control ports (only one used)
- 2x Gigabit Ethernet data ports (one active port)
- Up to 8x ASI MPEG-2 TS inputs/outputs
- Optional SFP port for Fiber optic distribution
- 1x 10 MHz input
- Dry relays outputs

Featuring
- ASI to IP and IP to ASI conversion
- RTP / UDP support
- Unicast and multicast support
- Pro MPEG Forum CoP#3 / SMPTE 2022
- Network jittering removal
- Unique patented SFN preservation with or without 10MHz
- Outstanding packet loss recovery mechanism to maintain SFN
- Bidirectional DVB-ASI ports
- 1+1 automatic redundancy of GigaCasterII (DistriGuard option)
- 1+1 automatic and seamless redundancy of RTP streams (DualIP option)
- IGMP v2/v3 support

ORDERING CODES

GigaCaster II-ASI1	Shipped with 4 ASI ports and 1 activated DVB-ASI I/O
GigaCaster II-ASI4	Shipped with 4 ASI ports and 4 activated DVB-ASI I/O
GigaCaster II-ASI8	Shipped with 8 ASI ports and 8 activated DVB-ASI I/O

Options	**DualIP**	1+1 redundancy of RTP streams
	NN6-SFP	Dual SFP slot hardware. SFP module not provided
	NN6-ASI1-4	License upgrade from 1 port to 4 ports
	NN6-In48V	48V input instead of 110V/220V
	NN6-In220V-Redundant	110/220V redundant power supply
	NN6-In48V-Redundant	48V redundant power supply

GigaCaster DMB DAB, DAB+, DMB ETI over IP Gateway

TECHNICAL CHARACTERISTICS

Inputs / outputs
- 2x Fast Ethernet control ports (only one used)
- 2x Gigabit Ethernet data ports
- 4x ETI inputs or outputs
- 4x optional redundant ETI outputs or ETI inputs monitoring
- Dry relay alarm contact

Featuring
- ETI to EDI or EDI to ETI converter
- Up to 4 simultaneous ETI/EDI streams management
- Stuffing removal
- Forward Error Correction (DCP) management
- Advanced network jittering removal
- SFN preservation
- Unicast or multicast support
- RTP/UDP and IGMP management
- EDI reception over one of the data ports
- ETI delivery over one of the data ports

ORDERING CODES

GigaCaster DMB	DAB, DAB+, DMB ETI over IP Gateway

Options	**NN6-ETI-Redundant**	Redundant ETI output or ETI input monitoring
	NN6-ETI-Monitoring	Advanced ETI to IP monitoring
	NN6-In48V	48V input instead of 110V/220V
	NN6-In220V-Redundant	110/220V redundant power supply
	NN6-In48V-Redundant	48V redundant power supply

MIPDVB MIP inserter – Single Frequency Network Adapter

TECHNICAL CHARACTERISTICS

Inputs / outputs
- 1x Gigabit control port for GUI/SNMP (from chassis)
- 2x ASI inputs and 2x ASI outputs
- Up to 4x Gigabit Ethernet data ports from the chassis/the module (Option)
- 1x TNC input antenna for internal GPS clock (Option)
- 1x PPS input

Featuring
- MIP packet insertion for broadcasting DVB-T signal over SFN
- T2 ready (firmware upgrade required)
- Bit rate adaptation and PCR restamping
- NIT update
- Optional parameters management
- Powerful 1+1 seamless redundancy over IP (SFNguard Option)
- Flexible IP management supporting IP redundancy and IP mirroring (Option)
- In-band configuration and firmware update delivery
- Real-time monitoring of incoming streams
- Easy to use web-based GUI
- Full SNMP v2 support

ORDERING CODES

HDm-MIPDVB		SFNAdapter with 2x ASI inputs and 2x ASI outputs
Options	**MIPDVB-IP**	IP input/output from the module (add 2x Gigabit Ethernet data ports - use one more slot)
	MIPDVB-IPc	IP input/output from the chassis (use 2x Gigabit Ethernet data ports of the chassis)
	SFNGuard	1+1 seamless redundancy for SFN operation
	NN6-GPSV2	Internal GPS receiver option
	MIPDVB-InBand	Enable to deliver in-band ENENSYS product firmware and configuration
	MIPDVB-T2Gateway	Allow firmware update to DVB-T2 Gateway
	MIPDVB-T2Guard	Updating SFNguard to T2Guard (requires MIPDVB-T2 Gateway) for DVB-T2 MFN and SFN 1+1 seamless switch

TxGateway DVB-T/T2 Gateway for OneBeam

TECHNICAL CHARACTERISTICS

Inputs / outputs
- 1x Gigabit control port for GUI/SNMP (from chassis)
- 2x ASI inputs and 2x ASI outputs
- Up to 4x Gigabit Ethernet data ports from the chassis/ the module (Option)
- 1x TNC input antenna for internal GPS clock (Option)
- 1x PPS input

Featuring
- Insert DTT maker into a live DTT or DTH stream• Full control of remote TxEdge to generate at the TX site the DTT multiplex
- Feed a DTH Multiplexer with the whole DTT stream or only the DTTMarker
- Generate MIP packet and DTT marker for DVB-T broadcasting
- Flexible IP management supporting IP redundancy and IP mirroring (Option)
- SFN broadcasting support
- TxGuard: 1+1 seamless change-over between two TxGateways
- IP output featuring ProMPEG CoP#3
- In-band configuration and firmware update delivery

DTH + DVB-T

ORDERING CODES

HDm-TxGateway		DVB-T/T2 Gateway for OneBeam with 2x ASI inputs and 2x ASI outputs
Options	**TxGateway-IP**	IP input/output from the module (add 2x Gigabit Ethernet data ports - use one more slot)
	TxGateway-IPc	IP input/output from the chassis (use 2x Gigabit Ethernet data ports of the chassis)
	TxGuard	1+1 seamless redundancy
	TxGateway-InBand	In-band configuration and firmware delivery
	NN6-GPSv2	Built-in GPS receiver

TxEdge SFN ReMUX for DVB-T/T2

TECHNICAL CHARACTERISTICS

Inputs / outputs
- 1x Gigabit control port for GUI/SNMP (from chassis)
- 2x ASI inputs and 2x ASI outputs
- Up to 4x Gigabit Ethernet data ports from the chassis/module (Option)
- 1x TNC input antenna for internal GPS clock (Option)
- 1x PPS input

Featuring
- Deterministic generation of a DVB-T or DVB-T2 multiplex for SFN operation
- Services filtering and mapping
- Powerful PSI/SI update (PAT, PMT, CAT, BAT, SDT, EIT)
- Dual source support to multiplex 2x DTH feeds into 1x DTT MUX
- MPTS inputs and MPTS output with MIP packet for DVB-T broadcasting
- MPTS input and T2-MI output for DVB-T2 broadcasting
- Support Single PLP and Multiple PLP in DVB-T2
- BISS Mode-1 descrambling (option)
- Regional EWS management to alert for immediate dangers (option)
- Flexible IP management supporting IP redundancy and IP mirroring (Option)
- In-band configuration and firmware update (option)

DVB T DVB T2

DTH + DVB-T

ORDERING CODES

HDm-TxEdge	TS adapter module with 2x ASI inputs and 2x ASI outputs
HDmSat-TxEdge	TS adapter module with 2 x DVB-S/S2 Satellite inputs (up to 32 APSK) - one active and 2x ASI inputs/outputs

Options	**TxEdge-IP**	IP input/output from the module (add 2x Gigabit Ethernet data ports - use one more slot)
	TxEdge-IPc	IP input/output from the chassis (use 2x Gigabit Ethernet data ports of the chassis)
	TxEdge-BISS	BISS-1 descrambling
	TxEdge-EWS	Alert for immediate dangers on a regional basis
	TxEdge-DualSat	Enable the second DVB-S/S2 satellite input on HDmSat-TxEdge
	TxEdge-DualSource	Combine services with an additional DTH source
	TxEdge-InBand	In-band firmware update
	NN6-GSPv2	Built-in GPS receiver

SatCaster Standalone DVB-S/S2 demodulator

TECHNICAL CHARACTERISTICS

Inputs / outputs
- 1x Gigabit control port for GUI/SNMP (from chassis)
- 2x L-band inputs (F-type)
- 2x ASI outputs
- 1x Gigabit Ethernet for data output from the chassis

Featuring
- Dual satellite demodulation (DVB-S/S2 to TS)
- C-band and Ku-band support
- Automatic detection of DVB-S/S2 standard
- QPSK, 8PSK, 16ASPK and 32 ASPK support
- 1+1 automatic redundancy of satellite inputs
- Multistream support
- BISS-1 descrambling as an option
- Full SNMPv2 support
- In-band configuration and firmware update (Option)
- Easy-to-use web GUI

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HDm-SatCaster		DVB-S/S2 demodulator module with 2 active DVB-S/S2 Satellite inputs (up to 32 APSK)
Options	**SatCaster-BISS**	BISS-1 descrambling
	SatCaster-InBand	InBand configuration and firmware update

EWSCaster EWS trigger inserter

TECHNICAL CHARACTERISTICS

Inputs / outputs
- 1x Gigabit control port for GUI/SNMP (from chassis)
- 2x redundant ASI inputs and 2x ASI outputs
- 2x Gigabit Ethernet data ports from the chassis (Option)

Featuring
- Keepalive EWS trigger generation to alert for immediate danger
- Up to 8 triggers can be generated
- Regionalization support (rEWSTM) to trigger different alert per region
- Support up to 80 regions and 255 zones per trigger
- SI independent to guarantee EWS Alert delivery
- In-band or out-of-band delivery of EWS trigger
- Simultaneous triggers generation
- Easy-to-use web based GUI
- Full SNMPv2 support

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HDm-EWSCaster		EWS trigger inserter
Option	**EWSCaster-IP**	IP input/output management (use 2x Gigabit Ethernet data ports of the chassis)

DTTCaster Professional DVB-T/T2/ISDB-T/Tb demodulator

TECHNICAL CHARACTERISTICS

Inputs / outputs
- 1x Gigabit control port for GUI/SNMP (from chassis)
- 1x RF input (N-type female - 50 Ω)
- 4x ASI (BNC) inputs/outputs
- 2x Gigabit data input/output ports from chassis

Featuring
- Demodulate up to 4x DVB-T signals
- Demodulate up to 4x DVB-T2 signals
- Demodulate up to 4x ISDB-T/Tb signals
- Support T2-base and T2-lite signals
- Demodulate up to 4x PLP in a DVB-T2 signal
- Output incoming MPEG-2 TS over ASI and IP
- Up to 2x deterministic T2-MI generation based on T2-MIP (Option)
- T2-MI input over ASI or IP to backup RF signals
- Up to 4x ASI outputs and 2x IP
- TS processing (PID filtering,...)

DVB-T DVB-T2 ISDB-T

ORDERING CODES

HDm-DTTCaster		DVB-T/T2/ISDB-T/Tb demodulator module with 1x RF input and 4 ASI outputs
Options	**DTTCaster-T2MI**	Deterministic T2-MI output for DVB-T2/SFN rebroadcasting
	DTTCaster-DualT2MI	Dual T2-MI generation

TSDescrambler Bulk DVB-CSA descrambler

TECHNICAL CHARACTERISTICS

Inputs / outputs
- 1x Gigabit control port for GUI/SNMP (from chassis)
- 2x DVB-CI slots to host ProCAM modules
- 1x Gigabit data port to output descrambled TS over IP (from the chassis)

Featuring
- Descrambling MPEG-2 TS encrypted with DVB-CSA algorithm
- TS over IP input and TS over IP output
- Descrambling the whole MPEG-2 TS or part of it (PID filtering)
- Up to 2x ProCAM to be hosted in the module
- Up to 6x TSDescrambler in 1U to host up to 12x ProCAM
- Management of up to 64 PID to descramble over 200 TV services in 1U
- Compliant with major CA vendors (NagraVision, Irdeto, Viaccess, ...)
- Process TS from other modules in the chassis or from IP input
- SFN compliant
- Easy-to-use web GUI
- Full SNMP V2 support

DVB-T DVB-T2 ISDB-T

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HDm-TSDescrambler	Bulk DVB-CSA descrambler

ASIIPGuard 2:1 or 3:1 Innovative ASI switch with IP I/O option

TECHNICAL CHARACTERISTICS

Inputs / outputs
- 1x Gigabit Ethernet for GUI/SNMP (from chassis)
- 2x ASI inputs and 2x ASI outputs
- 1x additional ASI input for switching over 3 feeds
  Option ASIIPGuard-1ASIIn2ASIOut
- ASI bypass to always output inputs in case of power outage
- Up to 3x Gigabit Ethernet data ports – Option ASIIPGuard-IP
- IP bypass for first IP input - Option
- Up to 2x additional ASI outputs – Option ASIIPGuard-1ASIIn2ASIOut
  (one additional only with ASIIPGuard-IP)

Featuring
- Automatic switch between 2 or 3 MPEG-2 TS (between 3 as an option)
- Seamless switching between 2 or 3 T2-MI streams (Option)
- Seamless switching between 2 or 3 BTS - Option
- Avoid TV black-out in SFN (and MFN in DVB-T2)
- Seamless switch-over with delayed source
- Up to 6 ASI switches in the same unit
- Switch between ASI feeds and IP feeds
- ETR290 based switching conditions
- MIP, T2-MI, BTS and advanced TS switching conditions
- ATSC switching criteria and PSIP analysis
- Peering mode to synchronize change-over of several ASIIPGuard
- Bypass mechanisms for ASI and IP inputs
- Video agnostic: MPEG-2 or MPEG-4/H.264
- Real-time monitoring of incoming streams

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HDm-ASIIPGuard		Innovative ASI switch with 2x ASI inputs and 2x ASI outputs with bypass
Options	**Seamless TS**	MFN and SFN seamless TS switch
	Seamless T2-MI	T2-MI MFN & SFN seamless switch
	ASIIPGuard-ATSC	ATSC analysis & switching conditions
	ASIIPGuard-BTS	BTS seamless switch
	ASIIPGuard-IP	Add 3x Gigabit Ethernet ports and 1x ASI output from the module – use one more slot
	ASIIPGuard-IPc	Use the chassis data ports as input or output
	ASIIPGuard-1ASIIn2ASIOut	1x additional ASI input and 2x additional outputs from the module – use one more slot (not compliant with ASIIPGuard-IP)
	ASIIPGuard-3TSIn	Automatic switch over 3 inputs
	ASIIPGuard-Peering	Synchronize several ASIIPGuard
	ASIIPGuard-QoS	SAE/SDE QoS monitoring

SafeSplitter Dual 1:3 ASI Splitter with TS monitoring

TECHNICAL CHARACTERISTICS

Inputs / outputs
- 2x Gigabit Ethernet Control ports (only one used)
- 2x Gigabit Ethernet data ports (not used)
- 2x DVB-ASI inputs
- 6x DVB-ASI outputs – with two bypass
- Dry relays output

Featuring
- 2x 1:3 ASI Splitter
- Bypass for main output in case of power failure
- ETR290 Level1, Level2 and Level3 monitoring
- Service Availability Error Monitoring (Option)
- Service Degradation Monitoring (Option)
- Service Bit rate monitoring
- TS multiplex monitoring
- T2-MI monitoring
- Full SNMP v2 support (set, get and traps)
- Easy-to-use web based GUI

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SafeSplitter		Dual 1:3 ASI Splitter with TS monitoring
Options	**NN6-QoS**	SAE/SDE QoS monitoring
	NN6-In48V	48 V input instead of 110V/220V
	NN6-In220VRedundant	110V/220V redundant power supply
	NN6-In48VRedundant	48V DC redundant power supply

IPGuardV2 Unique 1+1 IP streams redundancy

TECHNICAL CHARACTERISTICS

Inputs / outputs
- 1x Gigabit Ethernet for GUI/SNMP
- 2x Gigabit Ethernet data input ports
- 2x mirrored Gigabit Ethernet data output ports
- 4x SFP ports as option to receive TS over Fibber
- Dry relays output

Featuring
- Switch-over at stream level or data port level
- Unicast/Multicast (UDP/IP) streams support
- FEC correction and generation (ProMPEG CoP#3 support)
- Transparent network bridge
- Up to 60 IP streams managed
- Up to 6 TSoIP switch and monitoring (Option)
- Manage up to 396 switches in 1U with the DaisyChain option
- TS over IP automatic change-over
- T2-MI over IP automatic change-over (Option)
- Optional Seamless TS and Seamless T2-MI features• IP, ETR290 and advanced audio & video switching conditions
- Unmatching ATSC3.0/STL switching criteria
- Seamless switch-over between identical RTP streams (SMPTE2022-7)
- Peering mode to synchronize the change-over of several IPGuardV2
- IP Bypass mechanism to always output IP streams
- Real-time monitoring of incoming streams

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HDm-IPGuardV2		Smart IP switch with 2x IP inputs and 2x IP outputs with bypass
Options	**IPGuardV2-Seamless TS**	MFN and SFN seamless TS switch
	IPGuardV2-SeamlessT2- MI	T2-MI MFN & SFN seamless switch
	IPGuardV2-SeamlessRTP	Seamless switching between identical RTP streams
	IPGuardV2-FEC	FEC generation and modification on the outputs
	IPGuardV2-Peering	Synchronize several IPGuardV2
	IPGuardV2-DaisyChain	Share processing with another IPGuardV2
	IPGuardV2-1/2/6TS	Automatic switching between 1/2/6 TSoIP
	IPGuardV2-1/2/6STL	Automatic switching between 1/2/6 STL
	IPGuardV2-SFP	Add SFP ports to the module

Campaign Manager AdsEdge files delivery management

TECHNICAL CHARACTERISTICS

Inputs / outputs
- Up to 2x control ports for GUI/SNMP
- Up to 2x data ports to receive and delivering files

Featuring
- Software-based application that runs on a Virtual Machine
- Ease day-to-day operation of Target Content Insertion
- Outstanding dashboard to monitor at once the full operational system
- Control and monitor the files delivery with the AdsEdge
- Out-of-band files delivery over FTP (Push or Pull mode)

Featuring
- In-band files delivery using FDP protocol
- Enable to create and edit regional playlist to enable regional targeted content insertion
- User Authentication to restrict the access to the Campaign Manager
- Retrieve the AsRun logs from the AdsEdge to analyse the content insertion
- Content checking (codec, spots files format,...) before delivery
- On request playlist conversion to SCTE118-3 standard format
- Ingest mode to allow providers to download content and playlist
- Control splicing per SFN area to guarantee SFN broadcasting

Get at a glance the overall status of your whole Ads insertion system

Check the status of the Ads per service

Google-like map to identify the activities per region and AdsEdge

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CampaignManager		AdsEdge files delivery management (1 -20 AdsEdge) – Hardware not included
Options	**CM-100**	Monitor and Control the campaign for up to 100x AdsEdge)
	CM-100+	Monitor and Control the campaign for 100 AdsEdge more

AdsEdge Targeted Regional Content Insertion

TECHNICAL CHARACTERISTICS

Inputs / outputs
- 1x Gigabit control port for GUI/SNMP (from chassis)
- Up to 2x ASI inputs and 2x ASI outputs
- 2x Gigabit Ethernet data ports from the module (Option)
- 2x DVB-S/S2 input (Option)

Featuring
- Insert targeted content of file-based content (Ads, news, weather,...) for DTT or Cable networks
- TS or T2-MI inputs and outputs
- Combining Ad Server and splicing features in one unit
- Splicing with very low latency (few ms)
- Insertion of pre-stored advertisement upon SCTE35 trigger reception
- SCTE-35 Tier-0 and Tier-2 support
- Simultaneous insertion into up to 8 TV services
- Filtering of TV services' components to insert
- SCTE118-3 compliant for scheduling management and report generation
- AsRun logs generation as a proof of insertion
- Multi-PLP management for DVB-T2 broadcasting
- DTT SFN compliant (DVB-T2, DVB-T, ISDB-T)
- IP passthru to support Multi-TS over IP for cable environment
- Advanced files management to receive schedules and spots and deliver AsRun Logs
- 120 GB available by default
- Optional bypass on ASI outputs

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HDm-AdsEdge		Local Ad Insertion module with 2x ASI inputs and 2x ASI outputs (hardware)
HDmSat-AdsEdge		Local Ad Insertion module with 2x DVB-S/S2 Satellite inputs (up to 32 APSK) - one active and 2x ASI inputs/outputs
Options	**AdsEdge-Bypass**	ASI hardware passthru to maintain main stream - Hardware option
	AdsEdge-Splicing2	Ad insertion for 2 TV services
	AdsEdge-Splicing4	Ad insertion for 4 TV services
	AdsEdge-Splicing8	Ad insertion for 8 TV services
	AdsEdge-IP	IP input/output from the module (add 2x Gigabit Ethernet data ports - use one more slot)
	AdsEdge-DualSat	Enable the second DVB-S/S2 satellite input on HDmSat-AdsEdge

ATSCheduler ATSC3.0 Broadcast Gateway

TECHNICAL CHARACTERISTICS

Inputs / outputs
- 1x Gigabit control port for GUI/SNMP (from chassis)
- 4x Gigabit Ethernet data ports from the chassis and the module
- 1x TNC input antenna for internal GPS clock (Option)
- 1x PPS input

Featuring
- Encapsulation of ROUTE or MMT IP streams into STLTP
- LMT tables generation and LLS tables delivery
- ALP and BBFframe encapsulation of incoming IP stream
- Multiple PLP support (4 by default, 8 as an option)
- Single and multiple sub-frame management
- Timing information generation for SFN broadcasting
- 1PPS, GPS, PTP or NTP as reference clock
- 1+1 seamless change-over with STLGuard option and IPGuardV2 product
- Individual addressing of ATSC3.0 modulators
- STL generation over IP (STLTP)
- Flexible IP management supporting IP redundancy and IP mirroring
- Real-time monitoring of incoming streams
- Easy to use web-based GUI
- Full SNMP v2 support

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HDm-ATSCheduler		ATSC 3.0 Broadcast Gateway module with 2x IP inputs and 2x IP outputs
Options	**ATSCheduler-MPLP8**	Management of up to 8 PLP
	STLGuard	1+1 seamless change-over
	NN6-GPSV2	Internal GPS receiver

ATSCaster ATSC3.0 files delivery server

TECHNICAL CHARACTERISTICS

Inputs / outputs
- 1x control port for GUI/SNMP
- 1x data port to receive ISOBMFF and DASH segments and to deliver them over ROUTE or MMT protocols

Featuring
- Virtualized files delivery server over Route or MMT
- WebDAV input to receive DASH or ISOBMFF segments
- Encapsulation of live DASH segments over ROUTE protocol
- Encapsulation of live ISOBMFF segments over MMT protocol
- Encapsulation of NRT files into ROUTE protocol
- Up to 50 ROUTE or MMT sessions (5 by default)
- Files delivery over IP multicast
- Highly reliable with 1+1 redundancy
- Real-time monitoring of incoming streams
- HTTP/Rest API to be remotely controlled
- Easy to use web-based GUI
- Full SNMP v3 support

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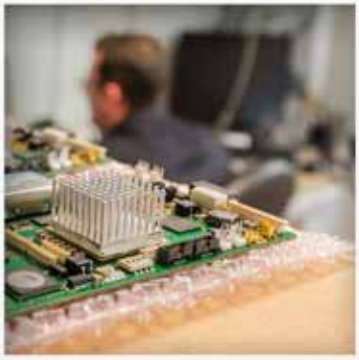
ATSCaster		ATSC 3.0 files delivery server
Options	**ATSCaster-20sessions**	Management of up to 20 Route or MMT sessions
	ATSCaster-50sessions	Management of up to 50 Route or MMT sessions

INDEX PRODUCTS



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