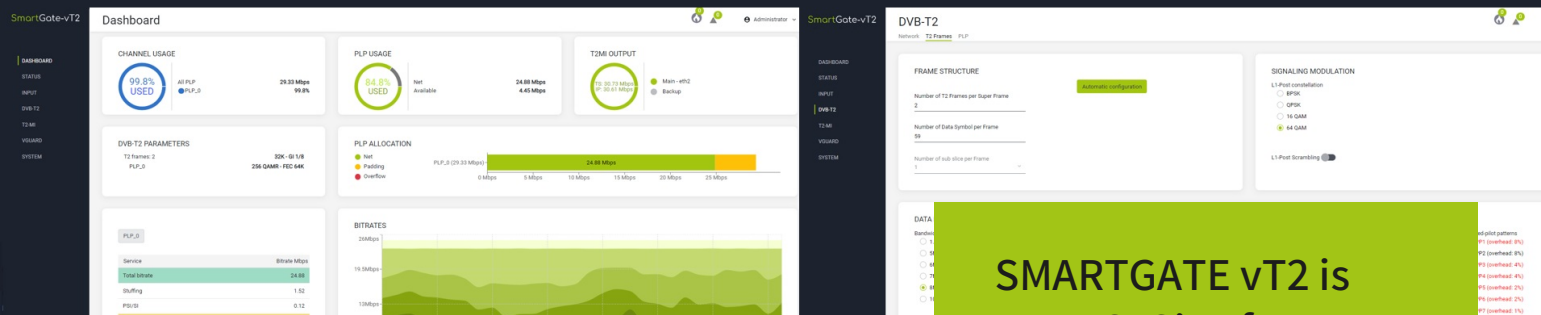# SmartGate vT2

Software Based DVB-T2 Gateway

> **SMARTGATE vT2 is ENENSYS' software solution for DVB-T2 SFN operation. It encapsulates multiple MPEG-2 TS over IP into a DVB-T2 multiplex to be broadcasted over IP.**

Running at the head-end after the multiplexer, the SmartGate vT2 is ENENSYS software-based broadcast gateway enabling DVB Multiplex transmission of DVB-T2 SFN networks. The SmartGate vT2 addresses customers' needs for full software architecture allowing future-proof and standard architecture fully independent from specific hardware.

Pure IP

The SmartGate vT2 is running in pure IP, it can receive several MPEG-2 TS over IP, with main and backup management. It encapsulates them into multiple PLP and delivers a 1+1 output stream over IP. The SmartGate vT2 can handle several virtual network interfaces to comply with main/backup scenario. The time synchronization is handled thanks to PTP or NTP.

Software-based and Virtualized

The SmartGate vT2 is a pure Software-based T2 Gateway. It can run on any COTS (Commercial Of The Shelf) server. Dedicated to virtualized environment, the SmartGate vT2 can be deployed using Docker container or Virtual Machine. Being virtualized, it can be installed along with other head-end function, typically software-based multiplexer and SmartGate vT2 can be installed on a same server.

Single Frequency Network

Running at the head-end, the SmartGate vT2 encapsulates one or several MPEG-2 Transport Streams over IP into DVB-T2 BaseBand frames. It outputs the resulting T2-base multiplex using the T2-MI (T2-Modulator Interface) protocol through IP. The T2Gateway is the central body of the operational DVB-T2 network as it provides in-band control and signaling to all the DVB-T2 modulators. When using Multiple PLP (Physical Layer Pipes) feature to provide service-specific robustness, the SmartGate vT2 enables all the modulators to generate the same PLP data in a deterministic manner.

Seamless 1+1 Redundancy

ENENSYS' patented technology, vGuard, is the unique 1+1 or N+1 redundancy mechanism that guarantees seamless switch-over between redundant SmartGate software to avoid any TV black-out. The vGuard applies with 1+1 or N+1 SmartGate vT2 applications that operate in 1+1 or N+1 redundancy with IPGuardV2, ENENSYS' seamless IP switch.

SmartGate vT2

Software Based DVB-T2 Gateway

Applications

- DVB-T2 SFN broadcasting
- Encapsulation of MPEG-2 TS into DVB-T2 baseband frames
- DVB-T2 Multi-PLP management
- Generation of T2-MI packets over IP
- Forward Error Correction (FEC) on the T2-MI output
- Flexible IP management for input redundancy and output mirroring
- Seamless 1+1 redundancy (patented technology vGuard)
- Virtualized environment

Other benefits

- Central body of the DVB-T2 network
- Interoperability with transmitters
- Virtualized and software-based to handle current & future broadcaster needs
- Avoid TV black-out during switch-over operation
- Validation of DVB-T2 transmission parameters
- Easy to setup and to monitor with intuitive GUI

Technical specifications

INPUT

Control / PTP / NTP
1x Virtual Network Interface for GUI/SNMP/NTP
1x Virtual Network Interface dedicated to PTP

MPEG-2 TS
Up to 2x Virtual Network Interfaces for incoming RTP/UDP streams (Main / Backup)

OUTPUT

T2MI
Up to 2x Virtual Network Interfaces for RTP/UDP output streams (Main / Backup)

FEATURING

DVB-T2 standard
V1.3.1, V1.4.1 support

DVB-T2 encapsulation
Encapsulation into BB frames
1.7,5,6,7,8,10 MHz bandwidth support

DVB-T2 network configuration
In-band control of T2 transmitters

SFN Adaptation
Integrated SFN adapter with MISO
Relative timestamp

PLP management
Single and Multi-PLP handling
Type1 and type2 management
Static and dynamic PLP allocation
ISSY generation

T2-MI output
Generation of T2-MI stream over IP
Forward Error Correction (FEC) at the RTP level

vGuard
Patented seamless switch-over between 1+1 or N+1 SmartGate vT2

Monitoring and Supervision
Validation of DVB-T2 parameters
Full SNMP v2 support

SmartGate vT2

Software Based DVB-T2 Gateway

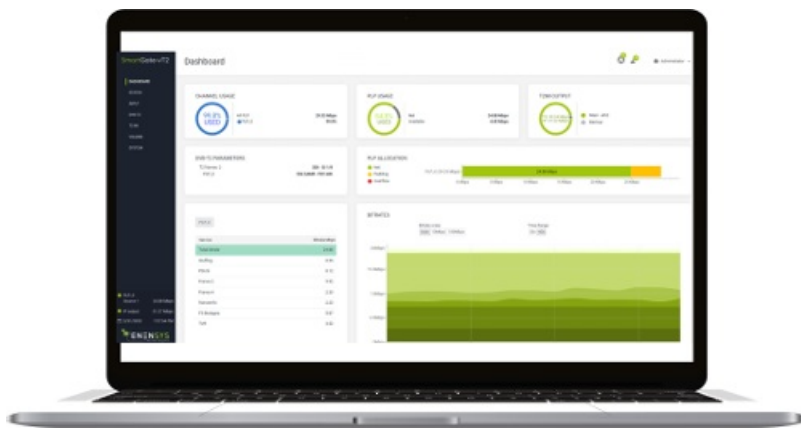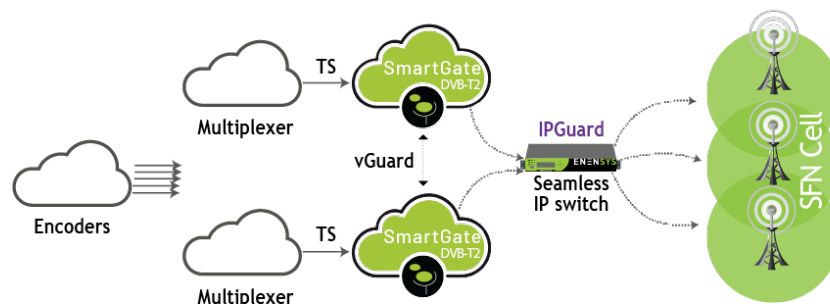| PHYSICAL		
Hypervisor		**Container**
ESXI 6.5/7.0		Docker
Processing		**RAM**
2 vCPU		2GB
HDD		
16GB		

Seamless 1+1 Redundancy with IPGuard

SmartGate vT2

Software Based DVB-T2 Gateway

Ordering codes

SmartGate vT2
Software-based gateway for DVB-T2

Ordering options

SmartGate-vT2-ACCESS
Encapsulation of MPEG-2 TS received over IP into BBFrames / T2-MI over IP output framing / Timestamping for MFN and SFN broadcasting

SmartGate-vT2-ULTIMATE
All SmartGate-vT2-PERFORMANCE features / Multiple PLP support (up to 8) / Individual addressing and FEF management / Regionalisation support (JumboT2MI) / Rebroadcasting Management (T2-MIP generation) / In-band delivery of configuration and firmware

SmartGate-vT2-PERFORMANCE
All SmartGate-vT2-ACCESS features / Redundant IP inputs and mirrored IP output / 1+1 seamless redundancy with vGuard patented technology