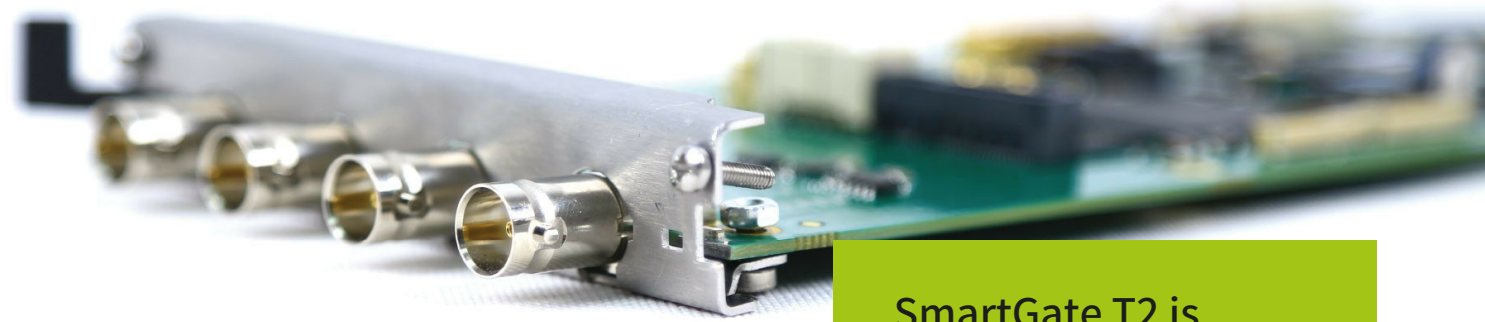


SmartGate T2

DVB-T2 Gateway



SmartGate T2 is ENENSYS' DVB-T2 Gateway for DVB-T2 SFN operation. It encapsulates multiple MPEG-2 TS into a DVB-T2 multiplex to be broadcasted over ASI or IP.

Running at the head-end, the SmartGate T2 for HDc encapsulates one or several MPEG-2 Transport Streams stemming from a DVB multiplexer into DVB-T2 BaseBand frames. It outputs the resulting T2-base or T2-lite compliant multiplex using the T2-MI (T2-Modulator Interface) protocol through ASI and IP. The SmartGate T2 runs in the HDc chassis that can embed up to 6x SmartGate T2 modules in 1U: the same chassis can output up to 6 T2-MI streams over ASI or IP.

Over 800 SmartGate T2 deployed worldwide

Since 2009, the world's first DVB-T2 Gateway has been deployed in all the continents to enable the roll-out of DVB-T2 services in single PLP and multiple PLP. All the major transmitter manufacturers have bought the ENENSYS SmartGate T2 to guarantee the interoperability in the network.

DVB-T2 Gateway with Multiple PLP support

The SmartGate T2 supports the encapsulation of MPEG-2 Transport Streams into up to 8 PLPs. As of today, the SmartGate T2 has been deployed in several multiple-PLP DVB-T2 services to enable regionalization but also fixed and mobile services in the same T2 signal.

SFN Management

The SmartGate T2 enables SFN broadcasting over DVB-T2 throughout several reference clock mechanisms. It provides in-band (T2-MI) relative or absolute timestamp information to all modulators to generate the same data at the very same time over the same frequency. It also supports MISO broadcasting to increase SFN performance.

High density solution

The SmartGate T2 runs in the ENENSYS HDc chassis that can embed up to 6x SmartGate T2 modules in 1U: the same chassis can output up to 6 T2-MI streams over ASI or IP. The SmartGate T2 can be embedded in the same 1U chassis with other modules such as the InverTS, the ASIIPGuard or the IPGuardV2.

1+1 and N+1 seamless redundancy

ENENSYS' patented technology, T2Guard, is the unique 1+1 or N+1 redundancy mechanism that guarantees seamless switch-over between redundant SmartGate T2 to avoid any TV black-out. Combined with the ENENSYS seamless switch ASIIPGuard or IPGuardV2, the SmartGate T2 offers a unique seamless SFN or MFN switch-over.

SmartGate T2

DVB-T2 Gateway

Applications

- DVB-T2 SFN/MISO broadcasting
- Encapsulation of MPEG-2 TS into DVB-T2 baseband frames
- Generation of T2-MI packets over IP
- DVB-T2 Mobile broadcasting
- DVB-T2 Multi-PLP management
- Forward Error Correction (FEC) on the T2-MI output
- Flexible IP management offering up to 4x Ethernet port for input redundancy and output mirroring
- Seamless 1+1 and N+1 redundancy (T2Guard patented technology)
- DVB-T2 Regionalisation
- DVB-T2 content rebroadcasting

Other benefits

- Central body of the DVB-T2 network
- Support T2-Base profile and T2-Lite profile
- Interoperability with transmitters
- Individual addressing of DVB-T2 transmitters
- JumboT2MI for enabling higher T2-MI bit rate
- In-band delivery of firmware and configuration to update remote ENENSYS products
- 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

1x Gigabit Ethernet (RJ45) for GUI/SNMP (TCP/IP) - Available from the chassis control port

GPS/GLONASS

1x PPS (BNC 50 Ω) input connected to an external GPS/GLONASS receiver - Available from the chassis

1x TNC for internal GPS/GLONASS connected to a GPS/GLONASS antenna (Option) - Available from the chassis

OUTPUT

T2MI

2x mirrored ASI (BNC 75 Ω) outputs - Available on the module

2x Gigabit Ethernet (RJ45) for RTP/UDP/IP output streams - Available from the IP data ports of the chassis

FEATURING

DVB-T2 standard

ETSI EN 302 755 V1.1.1, V1.2.1, V1.3.1, V1.4.1 support

ETSI EN 102 773 V1.1.1, V1.2.1, V1.3.1, V1.4.1 support

T2-base and T2-lite support

MPEG-2 TS

188 or 204 bytes

2x ASI (BNC 75 Ω) inputs

2x Gigabit Ethernet (RJ45) for RTP/UDP/IP input streams - Available from the chassis data ports

Option for additional 4x ASI (BNC 75 Ω) inputs

DVB-T2 encapsulation

Encapsulation into BaseBand (short or long) frames

1.7, 5, 6, 7, 8, 10 MHz bandwidth support

QPSK, 16 QAM, 64 QAM, 256 QAM constellation (Rotated or not)

FFT of 1K, 2K, 4K 8K, 16K (ext.), 32K (ext.) upon T2-base or T2-lite mode

Code Rate of 1/2, 3/5, 2/3, 3/4, 4/5, 5/6 upon T2-base or T2-lite mode

L1-post scrambling support

SmartGate T2

DVB-T2 Gateway

DVB-T2 network configuration

In-band control of T2 transmitters
Individual addressing of T2 transmitters
Future Extension Frame (FEF) generation to enable T2-lite and T2-base composite T2 signal
PAPR TR and ACE signalling

SFN Adaptation

Integrated SFN adapter with MISO
Relative and Absolute timestamp
T2-MIP generation in SPLP and MPLP

T2Guard

Patented seamless switch-over between 1+1 or N+1 SmartGate T2 to avoid TV blackout during SmartGate switch-over operation
Requires ASIIPGuard or IPGuardV2 T2-MI seamless switch afterwards

In-Band delivery

Delivering in-band configuration and firmware to other ENENSYS products

PLP management

Single and Multi-PLP handling (2 PLPs by default, 8 as an option)
Type1 and type2 PLP management
In-band type A and type B signalling
Static and dynamic PLP allocation
ISSY generation

IP management

ProMPEG CoP#3/SMPTE 2022-1
IGMPV3 and VLAN support
2x Gigabit Ethernet ports from the chassis
Additional 2x Gigabit Ethernet ports from the module (option SmartGate-T2-IP)
Allow 1+1 redundant IP input and mirrored IP output

T2-MI Output

Generation of T2-MI stream over ASI and IP
Automatic or manual bit rate adaptation
JumboT2MI output to deliver a T2-MI stream at a higher bit rate

Monitoring and Supervision

Validation of DVB-T2 parameters
Full SNMP V2 support
Easy-to-use web GUI

PHYSICAL

HDc Chassis

Width

443,7 mm / 17.46 in.

Format

1 RU, width 19"

Power supply

100-240V 50/60Hz or 48V DC

Control IP Port

1x Gigabit Ethernet (RJ45) control port

GPS input

1x TNC for GPS/Glonass input

10MHz input

1x 10MHz input

Height

43 mm / 1.69 in.

Depth

322,8 mm / 12,70 in.

Front Panel

LCD Display and controls

Power consumption

20W/module

Data IP Ports

2x Gigabit Ethernet (RJ45) data port

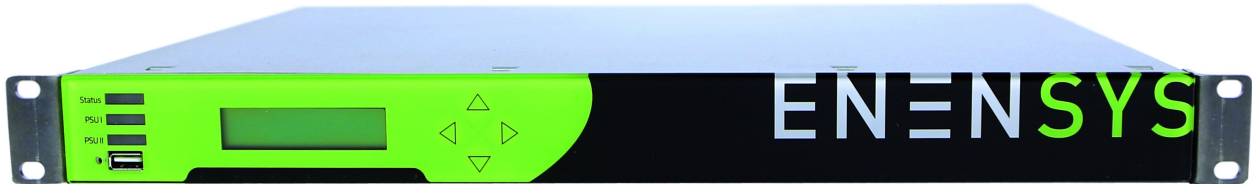
PPS input

1x PPS input

SmartGate T2

DVB-T2 Gateway

Front



Back



Ordering codes

HDc-Multi-220V

High Density chassis with 220V input, 1x Gigabit control port, 2x Gigabit data ports, 1x PPS input, 1x TNC for internal GPS/GLONASS

HDm-SmartGate-T2

DVB-T2 Gateway module with 4 ASI ports supporting encapsulation of MPEG-2 TS over ASI inputs, the management of 2 PLP, SFN broadcasting and T2-MI output over ASI

HDc-Multi-48V

High Density chassis with 48V input, 1x Gigabit control port, 2x Gigabit data ports, 1x PPS input, 1x TNC for internal GPS/GLONASS

Ordering options

HDcMulti-In220VRedundant

110V/220V redundant power supply

SmarGate-T2-MPLP8

Management of up to 8 PLP

T2Guard

1+1 or N+1 seamless redundancy to avoid TV blackout during swich-over operation

GPS antenna kit - 50 meters - KIT-GPS50-B5PF-TNCM

Including: 40dB GPS antenna, mechanical mounting for installation, lightning surge, 50 meters cable

HDcMulti-In48VRedundant

48V DC redundant power supply

SmarGate-T2-4ASI+

4 additional ASI inputs - Using one more slot

NN6-GPSv2

Activate Internal GPS receiver