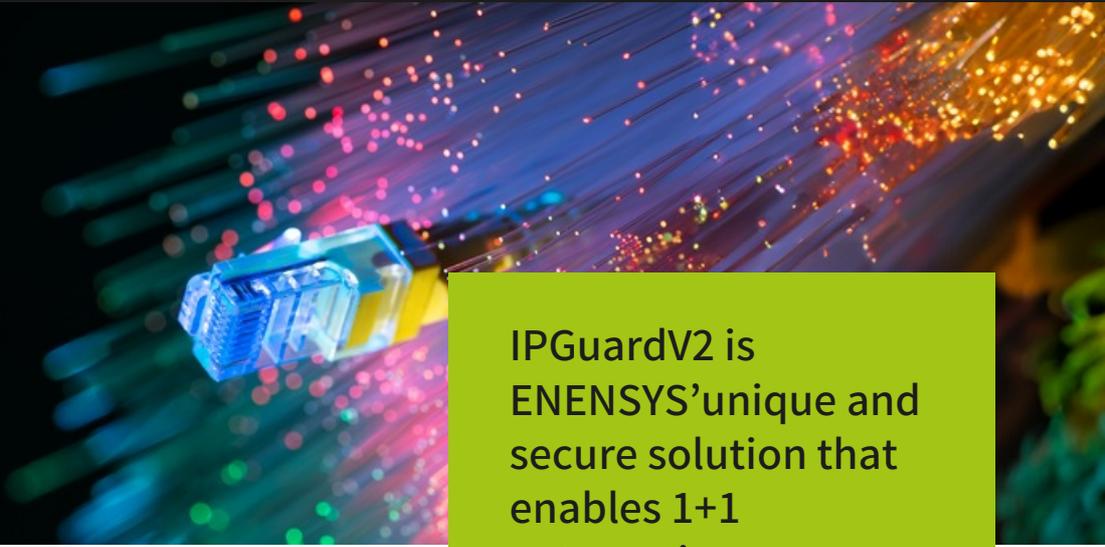


IPGuardV2

1+1 Smart Switch for IP Redundancy



IPGuardV2 is ENENSYS' unique and secure solution that enables 1+1 automatic redundancy of IP streams with bypass mechanism.

IPGuardV2 is ENENSYS' unique and secure solution which enables 1+1 Automatic IP switching with a hardware bypass mechanism. Designed for IP architectures, it can be used to switch between main & backup IP sources based on a set of configurable criteria in order to provide reliable IP transport and error-free streams.

Automatic IP Switch

IPGuardV2 switches automatically between IP-based devices or IP networks by selecting the best streams based on configurable criteria. It is designed to provide automatic 1+1 redundancy of:

- any equipment that delivers TSolP or IP streams such as encoders, multiplexers, DVB-T2 gateways, MIP inserters, data servers,...
- any IP network used to transport IP streams, handling different delays.

Seamless Switching

The IPGuardV2 offers seamless switching capability between two identical MPEG-2 TS, T2-MI, RTP or STL streams that are carried over redundant IP-based networks with different delays: it aligns both streams to perform a seamless switching. When combined with ENENSYS gateways, IPGuardV2 can provide a seamless switch-over between two gateways for ATSC3.0, DVB-T/T2 & ISDB-Tb networks.

100% Service Availability

By default, the IPGuardV2 offers an IP bypass mechanism in order to enable 100% of service availability in case of power outage. In this case, incoming IP streams are still delivered at the output.

High Density Solution

Up to 6 IPGuardV2 modules can be housed in the same 1RU HDc chassis. One IPGuardV2 module is able to manage up to 6 TSolP switches based on advanced TS criteria and up to 60 IP switches based on IP conditions. With DaisyChain option, several IPGuardV2 can be serialized, increasing the whole processing capability to be convenient in applications dealing with high number of streams.

IPGuardV2

1+1 Smart Switch for IP Redundancy

Applications

- 1+1 automatic redundancy of IP equipment
- 1+1 automatic redundancy between IP streams
- DVB-T/T2 and ISDB-T automatic switch-over
- ATSC 1.0 & 3.0 automatic switch-over
- Seamless TSoIP switch-over
- Seamless T2-MI & STL over IP switch-over
- SMPTE2022-7 seamless protection switching
- Switch-over based on:
 - ETR290 1/2/3 and audio/video advanced criteria
 - STL criteria for ATSC3.0
 - IP dedicated criteria (RTP packet loss, stream jitter, stream presence, RJ45 error)
 - Bitrate scheduled criteria

Other benefits

- Avoid TV black-out
- Avoid audio & video glitches in case of equipment or network link failures
- Multi-standard applicable (DVB, ATSC, ISDB,...)
- Video agnostic: MPEG-2, H.264 or HEVC
- Maintain service continuity
- High density & scalable solution with up to 60 switches in 1 module and 360 in 1U
- Synchronize different locations (head-end, transmission sites) with Peering feature
- Transparent for end-to-end devices

Technical specifications

INPUTS

Control

1x Gigabit Ethernet (RJ45) for GUI/SNMP

Data

2x Gigabit Ethernet (RJ45) for IP input streams
2x optional SFP ports

OUTPUTS

Data

2x mirrored Gigabit Ethernet (RJ45) for IP output streams
2x optional SFP ports

Availability

Bypass mechanism to always output IP streams in case of power outage

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FEATURING

UDP/IP stream management

Unicast/Multicast stream
RTP support
VLAN management

Seamless switch

Seamless switch-over between the same TS,T2-MI or STL carried over IP
Seamless switch-over between identical RTP streams
SMPTE2022-7 compliant
Alignment of delayed streams

Switching conditions

IP alarms (presence, bit rate,...)
ETR290, MIP, and T2-MI alarms
Advanced TS alarms
SMPTE2022-7
RTP packet loss
Network jitter
Scheduled monitoring

Network transparent bridge

No MAC/IP addresses for data interfaces

Peering

Peer several IPGuardV2 so that they select the same streams

Monitoring supervision

Real-time monitoring of incoming streams
Web-based GUI
Full SNMP v2 support

IP switch

Up to 60 IP streams managed
Up to 6 TS/T2-MI over IP switches
Up to 6 STL over IP switches
IP Bypass for service availability

Switching modes

Automatic switch
Priority input
Manual switch
Least errors
Peering to allow switching synchronisation between
2 IPGuardV2

FEC management

SMPTE 2022-1 (Pro MPEG CoP#3)
FEC input correction (TSolP)
FEC output generation (TSolP)

Network address translation

Modify IP characteristics of the incoming streams

Daisy chain mode

Serialization of several IPGuards to increase processing capacities

PHYSICAL

Height

43mm / 1.69in.

Depth

322,8mm / 12,70 in.

Front Panel

LCD Display and control

Power consumption

20W/module

Width

443,7mm / 17.46 in.

Format

1 RU, width 19"

Power supply

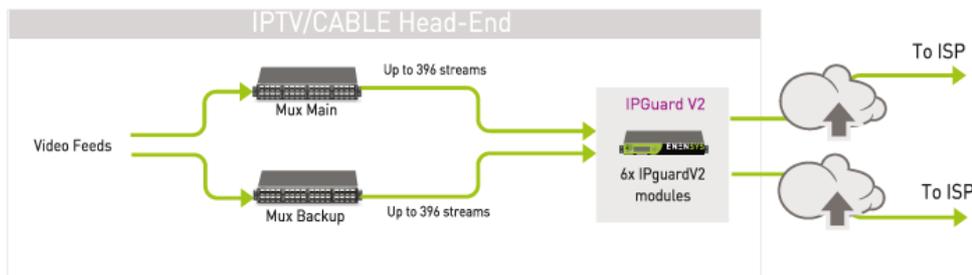
100-240V 50-60Hz - 48V DC (option)

IPGuardV2

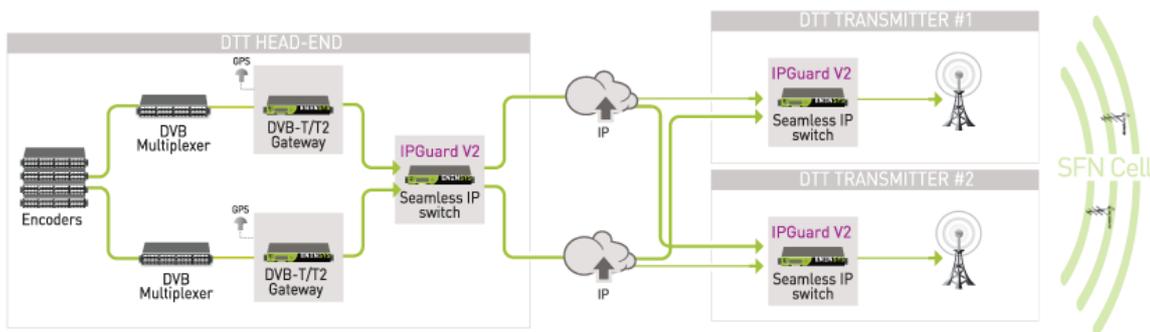
1+1 Smart Switch for IP Redundancy

Automatic IP Redundancy - Typical Use-Cases

IPTV/Cable Head-End redundancy



DTT Service End-to-End Redundancy



Ordering codes

HDmIPGuardV2

Automatic 2:1 IP switchover module with 2x IP inputs and 2x IP outputs

Ordering options

IPGuardV2-SFP (Hardware Option)

Add 4x SFP ports to manage IP streams over optical fiber

IPGuardV2-2TSolP

2:1 switchover license for 2x TSolP or T2-MI switches

IPGuardV2-GWRedundant

Automatic redundancy of Enensys DVB-T2 Gateways in N+1 configuration

IPGuardV2-SeamlessSTL

Add ATSC 3.0 STL Seamless switchover capabilities

IPGuardV2-6STL

2:1 switchover license for 6x STL switches

IPGuardV2-SeamlessTS

Seamless switching between TS/T2-MI streams

IPGuardV2-6TSolP

2:1 switchover license for 6x TSolP or T2-MI switches

IPGuardV2-CriteriaPriority

Assign priorities on switching criteria to select the input stream with less critical errors

IPGuardV2-2STL

2:1 switchover license for 2x STL switches

IPGuardV2-SeamlessRTP

2:1 switchover license for 6x identical RTP streams (SMPTE2022-7)