IPGuardV3 Automatic 1x1 IP Switch for IP Redundancy

IPGuardV3 is ENENSYS' unique and secure solution that enables 1+1 automatic redundancy of input streams with bypass mechanism.

IPGuardV3 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

IPGuardV3 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 TSoIP 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 IPGuardV3 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, IPGuardV3 can provide a seamless switch-over between two gateways for ATSC3.0, DVB-T/T2 & ISDB-Tb networks.

100% Service Availability

By default, the IPGuardV3 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 IPGuardV3 modules can be housed in the same 1RU HDc chassis. One IPGuardV3 module is able to manage up to 6 TSoIP switches based on advanced TS criteria, or up to 6 RTP Streams. It can also manage up to 60 IP switches based on IP conditions. With DaisyChain functionality, several IPGuardV3 can be serialized, increasing the whole processing capability to be convenient in applications dealing with high number of streams.

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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

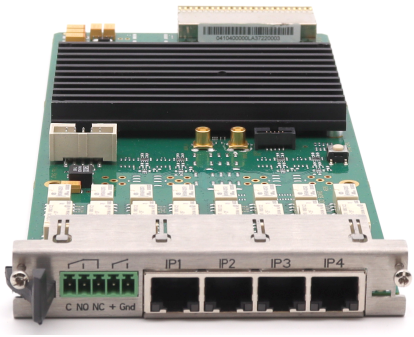
Control
1x Gigabit Ethernet (RJ45) for GUI/SNMP

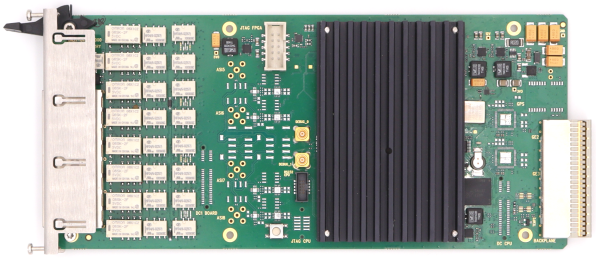
Data
2x Gigabit Ethernet (RJ45) for input streams

OUTPUTS

Data
2x mirrored Gigabit Ethernet (RJ45) for output streams

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





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FEATURING

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

Automatic changeover
Up to 2 TS over switches - Optional : up to 6 TS
Up to 6 T2-MI over IP switches
Up to 6 STL over IP switches
Up to 60 IP streams managed
IP Bypass for service availability

Seamless switch
Seamless switch-over between the same TS, T2-MI
STL carried over IP (Option)
Seamless switch-over between identical RTP streams
SMPTE2022-7 compliant
Alignement of delayed streams

Switching modes
Automatic switch
Priority input
Manual switch
Least errors
Peering to allow switching synchronisation between 2xIPGuardV3

UDP/IP stream management
Unicast/Multicast stream
RTP support
VLAN management

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

Network transparent bridge
No MAC/IP addresses for data interfaces
IGMP Protocol supported

Network address translation
Modify IP characteristics of the incoming streams

Peering
Peer several IPGuardV3 so that they select the same streams

Daisy chain mode
Serialization of several IPGuards to increase processing capacities

Monitoring supervision
Real-time monitoring of incoming streams
Web-based GUI (HTML5)
Full SNMP v2 support

PHYSICAL

HDc

Height
1.69 in (43mm)

Width
17.46 (443.7mm)

Depth
12.70 in (322.8mm)

Format
1 RU, width 19 in

Front Panel
LCD Display and control

Back Panel
The connector is a 5-position MiniConnec with a 3.81mm pitch.

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

Control IP Port
1x Gigabit Ethernet (RJ45) control port

Data IP Ports
2x Gigabit Ethernet (RJ45) data port

Power consumption
24W/module

Operating temperature
0 to 50°C / 0 to 122°F with 3 modules - 0 to 45°C / 0 to 113°F with 6 modules

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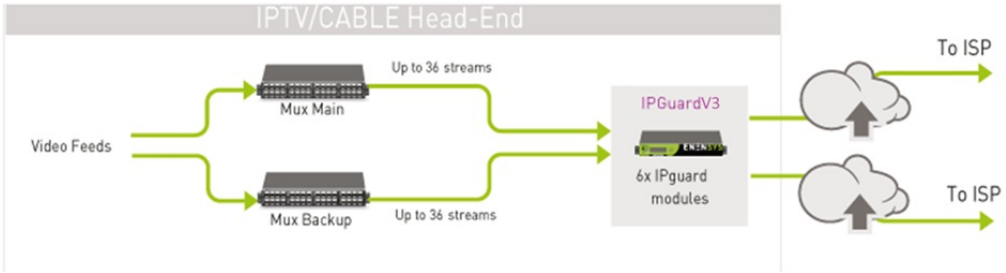
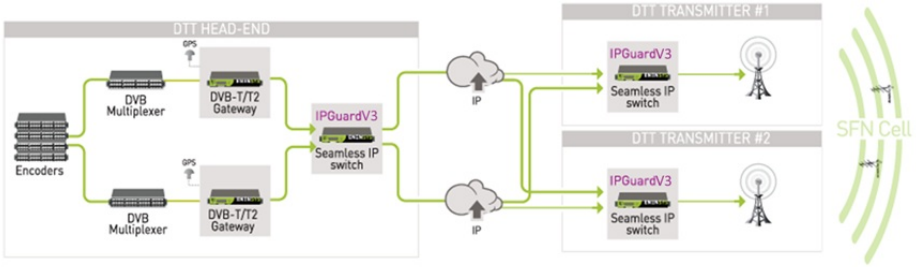
Automatic IP Redundancy - Typical Use-Cases

IPTV/Cable Head-End redundancy



DTT Service End-to-End redundancy



Ordering codes

HDmII_IPGuardV3

Automatic 2:1 IP switchover module with 2x IP inputs and 2x IP outputs
2:1 switchover license for 2x TSoIP switches

Ordering options

IPGuardV3-Access

Pack Access including : 2TSoIP, Criteria Priority, GW Redundancy

IPGuardV3-Performance

Pack Performance including : 2TSoIP, Criteria Priority, GW Redundancy, Seamless TS, Seamless T2MI, Seamless RTP

IPGuardV3-Ultimate

Pack Ultimate including : 6TSoIP, Criteria Priority, GW Redundancy, Seamless TS, Seamless T2MI, Seamless RTP, Seamless STL

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