ENENSYS

IPGuard V2 for HDc

1+1 Smart switch for IP redundancy

IPGUARD V2 IS ENENSYS' UNIQUE AND SECURE SOLUTION THAT ENABLES 1+1 AUTOMATIC REDUNDANCY OF IP STREAMS WITH BYPASS MECHANISM.

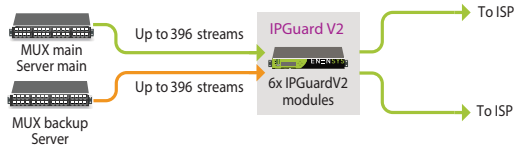
Automatic IP Switch

IPGuard V2 is the ENENSYS solution to secure the delivery of any IP streams. 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.

By default, the IPGuard V2 offers an IP bypass mechanism in order to offer 100% of service availability in case of power outage: incoming IP streams are still delivered at the output although the IPGuard V2 has no power. In addition, it can perform FEC correction of incoming TSoIP streams to cope with packet loss. On the output FEC configuration can be kept, modified or even removed.

High Density Solution

Thanks to its highly compact form factor, up to 6 IPGuard V2 modules can be housed in the same 1RU HDc chassis. One IPGuard V2 module is able to manage up to 6 TSoIP switches based on advanced criteria and up to 60 IP switches based on basic IP conditions. Thanks to **Daisy Chain** mode, several IPGuard V2 can be serialized, increasing the whole processing capability to be convenient in applications dealing with high number of streams.



Seamless Switching

IPGuard V2 offers seamless switching capability of two identical MPEG-2 TS, bTS or T2-MI 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 DVB-T2 Gateway and the patented technology **T2Guard**, IPGuard V2 provides a seamless switch-over between two DVB-T2 gateways that deliver T2-MI streams over IP networks.

APPLICATIONS

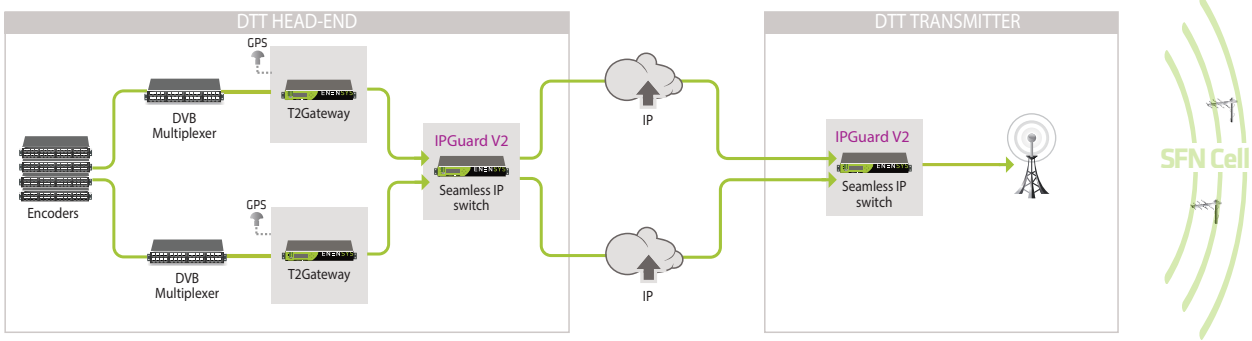
- 1+1 automatic redundancy of IP equipment
- 1+1 automatic redundancy between IP streams
- Seamless switch-over TS, T2-MI carried over IP
- Seamless switch-over bTS carried over IP
- FEC generation of TSoIP streams

BENEFITS

- Multi-standard applicable (DVB, ATSC, ISDB,...)
- Video agnostic: MPEG-2, H.264 or HEVC
- Maintain service continuity
- Running in High Density chassis (HDc):
  - to allow up to 6 IPGuard V2 modules in 1U
  - to combine with other Enensys products
  - to extend processing with daisy chain mode
- Avoid TV black-out in SFN (and MFN in DVB-T2)
- Avoid video glitches with delayed sources
- Transparent for end-to-end devices

CHARACTERISTICS

- UDP and RTP management
- Unicast and Multicast support
- VLAN management
- Transparent IP switching
- Up to 66 IP streams monitored per IPGuard
- TS over IP automatic and seamless switch
- T2-MI over IP automatic and seamless switch
- BTS over IP automatic and seamless switch
- FEC (Pro MPEG CoP#3) management
- Bypass mechanism support
- Ability to modify IP streams characteristics
- Easy-to-use web based GUI
- Full SNMPv2 support



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INPUTS

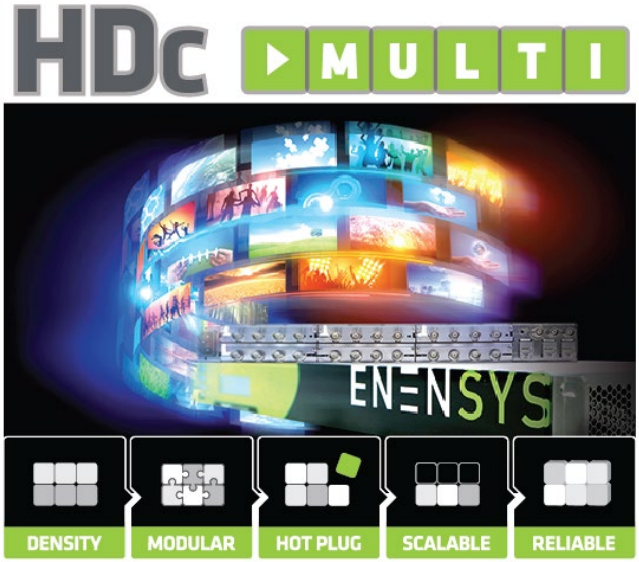
Control	1x Gigabit Ethernet (RJ45) for GUI/SNMP
Data	2x Gigabit Ethernet (RJ45) for UDP/IP input streams 2x optional SFP ports

OUTPUTS

Data	2x mirrored Gigabit Ethernet (RJ45) for UDP/IP output streams 2x optional SFP ports
Availability	Bypass mechanism to always output IP streams in case of power outage

FEATURING

UDP/IP stream management	Unicast/Multicast stream RTP support VLAN management
IP switch	Up to 60 IP streams managed Up to 6 TS/T2-MI over IP analyzed Up to 6 BTS over IP analyzed IP Bypass for service availability
Seamless switch	Seamless switch-over between the same TS,T2-MI or BTS carried over IP Alignement of delayed streams
Switching modes	Automatic switch Priority input Manual switch
Switching conditions	IP alarms (presence, bit rate,...) ETR290, MIP, and T2-MI alarms Advanced TS alarms
Daisy chain mode	Serialization of several IPGuards to increase processing capacities
FEC management	SMPTE 2022-1 (Pro MPEG CoP#3) FEC input correction (TSoIP) FEC output distribution (TSoIP) FEC output generation (option)
Monitoring Supervision	Real-time monitoring of incoming streams, Web-based GUI Full SNMP v2 support



PHYSICAL

Height	43 mm / 1.69 in.
Width	443,7 mm / 17.46 in.
Depth	322,8 mm / 12,70 in.
Format	1 RU, width 19"
Front Panel	LCD Display and controls
Power supply	100-240V 50/60Hz - 48V DC (option)
Power consumption	20W/module

ORDERING CODES

HDc-Multi-220V High Density chassis with 220V input
HDc-Multi-48V High Density chassis with 48V input

Chassis Options

HDcMulti-In220VRedundant	110V/220V redundant power supply
HDcMulti-In48VRedundant	48V DC redundant power supply

HDm-IPGuardV2 1+1 smart switch for IP redundancy

Module Options

IPGuardV2-SeamlessTS	MFN and SFN seamless TS switch
IPGuardV2-SeamlessT2-MI	T2-MI MFN & SFN seamless switch
IPGuardV2-SeamlessbTS	MFN & SFN seamless BTS switch
IPGuardV2-FEC	FEC generation on the output
IPGuardV2-1/2/6TSoIP	Manage 1, 2 or 6 TSoIP streams
IPGuardV2-DaisyChain	Add processing with other IPGuard
IPGuardV2-SFP	Add SFP ports to the module
IPGuardV2-Peering	Synchronize several IPGuardV2

ENENSYS Networks

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RoHS