



cProcessor

CP330

T2-Bridge

Regional adaptation in DTT networks is a critical differentiator for network operators. The CP330 T2-Bridge offers the ideal toolbox for regional adaptation in DVB-T and DVB-T2 Single Frequency Networks (SFN).

The CP330 offers a flexible and highly cost effective solution for regional adaptation at DVB-T and DVB-T2 transmitter sites. By using Nevision's deterministic processing technology CP330 supports two operational modes for feeding of transmitters in multiple SFN regions. The input signal feeding CP330 can be regional multi-stream feed or a transport stream as used for Direct to Home (DTH) satellite system.

CP330 supports multiple modes of operation:

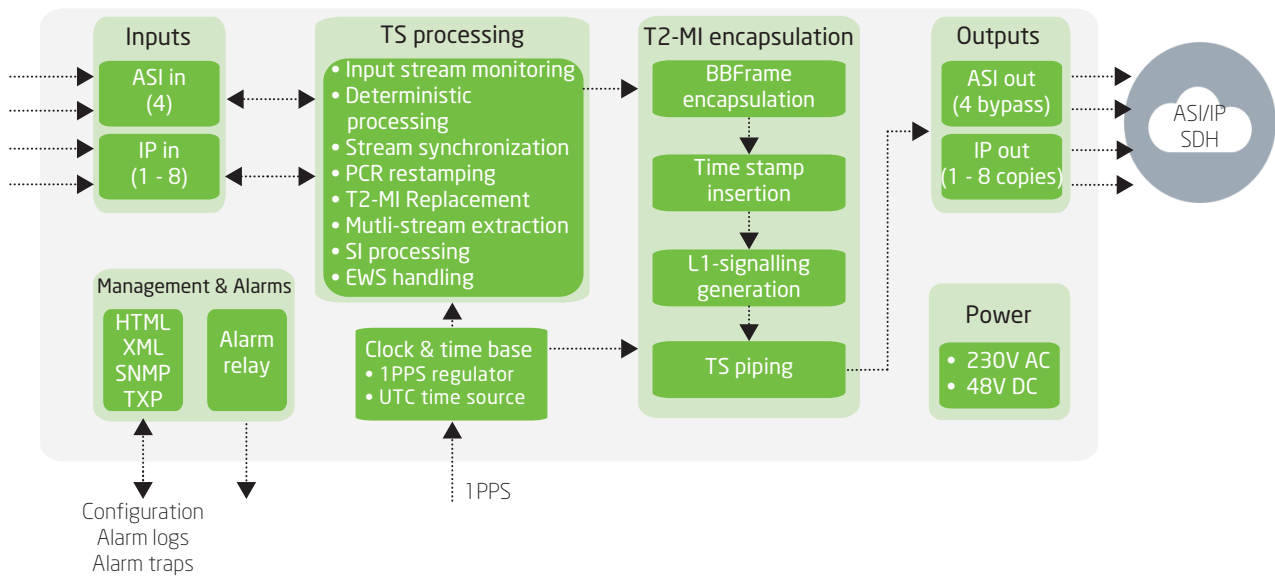
- Nevision deterministic adaptation based on Multiple Physical Layer Pipe (M-PLP) technology and enables the insertion of local content by adapting an incoming national T2-MI feed and a deterministic regional Transport Stream (TS) feed.
- Nevision deterministic re-multiplexing uses a deterministic Transport Stream processing to insert local content and generate a standard compliant T2-MI at the transmitter site. Several CP330 T2-Bridges located at multiple transmitter sites in the same region will broadcast in SFN mode.

Applications

- Regional adaptation in DVB-T SFN networks where generating identical transmitter feeds is crucial
- Regional adaptation in DVB-T2 networks using DTH broadcast signals (Deterministic re-multiplexing)
- Regional adaptation in DVB-T2 networks by deterministic insertion of local content into a T2-MI stream.

Key features

- Deterministic re-multiplexing for DVB-T and DVB-T2
- Deterministic adaptation for DVB-T2
- Service Information processing
- Emergency Warning System (EWS) support
- Input stream monitoring
- ASI and IP input/output interfaces
- ASI pass-through i/o board
- Input redundancy with alarm based switching
- User-friendly configuration and control
- Compact, cost-effective solutions with 2 units in 1RU



Deterministic processing

The CP330 is able to re-multiplex Transport Streams and T2-MI like streams deterministically and generate identical outputs on all the units with identical configuration. This is a crucial requirement for SFN operation.

Reuse of DTH signal

The deterministic re-multiplexing feature allows operators to use a Direct To Home (DTH) satellite signal to feed DVB-T and DVB-T2 transmitters. This capability reduces costs and efforts of feeding the transmitters.

SFN synchronization

Using a 1PPS input, the CP330 generates a very accurate DVB-T2 time stamps and MIP packets for the synchronization of DVB-T2 and DVB-T transmitters in SFN networks. The continuity and accuracy of these time stamps is crucial for the SFN operation.

Multiple PLPs

Transport stream inputs are re-multiplexed and mapped to physical layer pipes (PLP). This feature allows for different protection and coding of data and services. The CP330 supports up to 8 PLPs.

Emergency Warning System (EWS)

The CP330 reacts to external triggers and can load an emergency configuration for transmitters in the endangered region. The unit can transmit the emergency content on all channels.

Transport stream monitoring

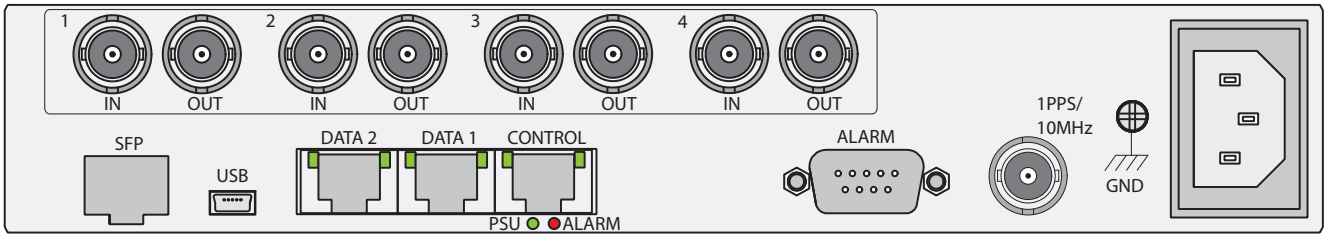
In order to ensure error free processing, CP330 monitors the input streams according to TR 101 290 priority 1. In case of errors in the input streams, alarms are raised to inform the operator and traps are forwarded to the NMS.

Transport stream over IP

The output transport stream is encapsulated according to SMPTE 2022-2 including the handling of FEC. (SMPTE 2022-1). CP330 supports multiple VLANs (IEEE 802.1Q), IP QoS and VLAN CoS/802.1P for per-flow traffic prioritization.

User-friendly configuration

The user interface of the CP330 is simple and very intuitive, it is designed to help the operator configure the unit quickly. Running on any web browser the GUI can be accessed from any computer.



Transport stream interfaces

DVB-ASI	8 DVB ASI ports (EN 50083-9, Annex B) 4 inputs/ 4 output bypass Bit rate: 0.1 - 213 Mbit/s 188 or 204 byte packet length Burst and Spread mode Female BNC connectors 75 Ohm
Gigabit Ethernet	2 x 100/1000Base-T Ethernet, 1 x SFP Connectors: 2 x RJ45 (100/1000Base-T), SFP TS Encapsulation: SMPTE 2022 -1/2 Forward Error Correction (FEC): SMPTE 2022-1 Protocols: IEEE 802.3 Ethernet, VLAN (802.1Q) ARP, IPv4, UDP, TCP, RTP, IGMPv2/3 Up to 8 input streams over IP

Deterministic re-multiplexing

Re-multiplexing of inputs streams including rate adaptation and PCR restamping
Service and component based filtering and re-multiplexing
PSI/SI remapping and regeneration

Nevion deterministic adaptation

DVB-T2 regionalization using national T2-MI on main input and Nevion multi-stream on regional input. For use on DVB-T2 transmitter sites Service Information (SI) adaptation Early Warning System (EWS) handling

DVB-T SFN adaptation

Mega-frame Initialization Packet (MIP) insertion according to ETSI TS 101 191	
SFN operational modes	2k and 8k modes in 8, 7 and 6 MHz bandwidth modes

DVB-T2 adaptation

DVB-T2 MI encapsulation	DVB-T2 versions 1.1.1, 1.2.1 L1-signalling frames generation Baseband frames encapsulation
Multiple PLP support	Up to 8 PLPs
SFN operation	DVB-T2 time stamps insertion DVB-T2 MIP insertion
Bandwidth support	1.7MHz, 5MHz, 6MHz, 7MHz, 8MHz, 10MHz
Individual addressing	MISO PAPR parameters

Time synchronization

Clock reference	1PPS input (50 Ohm female BNC)
UTC time reference	SNTP over the management interface (RJ45)

Redundancy and monitoring

Synchronization of DVB-T2 frames between units operating in 1+1 configuration. The synchronization is software based and does not require communication between the units.	
Input signal monitoring	TR 101 290 priority
Optional ASI signal pass-through for PLP replacement mode	

Management & control

Management port	10/100 Base-T Ethernet Connector:
Element control through HTTP/WEB based GUI	
XML Configuration import and export via HTTP	
SNMP agent for integration with Network Management System (NMS)	
EWS in-band signalling protocol	
Protocols	HTTP, XML, SNMPv2c
Alarm relay	9 pin D-SUB. Two relays supported; one at configurable alarm level
Maintenance port	USB version 1.1

Physical and environmental characteristics

Input voltage	100-240V AC +/- 10%, 50/60 Hz, optional: -48V DC
Power consumption	35W max
Dimensions	1RU, 1/2-width 19" (WxDxH) 210 x 300 x 44.5mm
Operating temperature	0°C to 50°C
Storage temperature	-20°C to 70°C
Relative humidity	5% to 95% (non condensing)
Compliance	CE: 73/23/EEC (Low voltage equipment) 89/336/EEC (Electromagnetic compatibility) CSA: Designed for CSA approval Safety: IEC60950 and EN60950 EMC: EN55022, EN55024, EN6100-3-2

cProcessor

Our award-winning cProcessor transport stream processing and multiplexing products make the complex simple.

Even better, they enable tailoring of regional and local service packages, component filtering, advanced updating of PSI/SI/PSIP tables, and enhanced quality of service. User friendly, highly robust and cost effective. It's this simplicity and performance that has secured our place in some of the world's most advanced terrestrial networks.

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