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cProcessor

CP505

ATSC Processor

The CP505 ATSC Processor offers flexible ASI, SMPTE 310M and IP network adaptation and advanced transport stream processing in a user friendly and compact solution.

The CP505 ATSC Processor provides powerful adaptation of MPEG-2 Transport Streams for the ATSC broadcast market. It performs interface adaptation for studio to transmitter links in a flexible and easy way.

The CP505 is a cost-effective solution for regional service adaptation operating stand-alone with very low power consumption.

The PSIP handling features ensures easy generation, regeneration, ingestion or editing of PSIP data simplifying workflow and saving costs and equipment.

Nevion cProcessors can be configured via an easy-to-use web interface, which also offers extensive built-in stream monitoring. Scheduled software upgrades can be performed via Connect, VideoIPath, or any NMS.

Applications

- Network adaptation and interface conversion between IP, ASI, SMPTE 310 and optional SONET/SDH

- Dynamic PSIP generation based on a PMCP XML file from EPG providers

- PSIP rebranding at transmitter sites (regional VCT adaptation)

- PID and service filtering with automatic PSI/PSIP/SI updates

- Insertion of PSI/PSIP/SI service information from PSI/PSIP/SI generators and service providers

- Output diversity for increased reliability including unicast, multicast and multicast to unicast conversion

Key features

- Flexible transport stream interfacing and adaptation

- Flexible transport stream processing

- Powerful PSI/SI/PSIP handling

- Transport stream monitoring

- Input redundancy

- User-friendly configuration and control

- Compact, cost-effective solutions with 2 units in 1RU
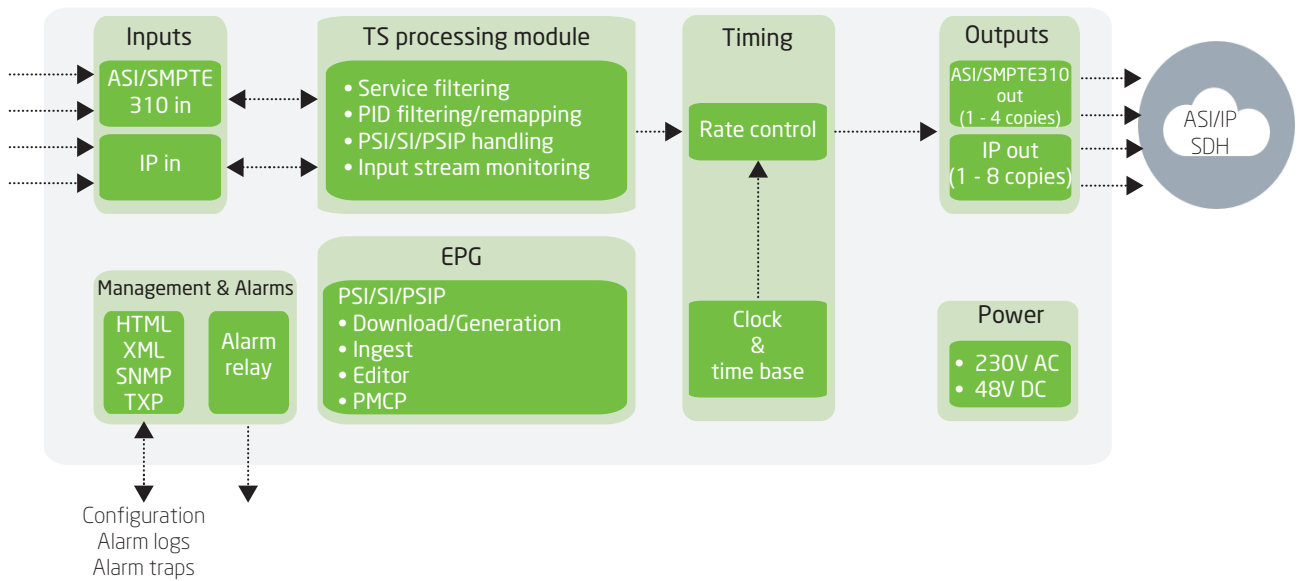
Format conversion

Flexible input and output interfaces facilitate the interface adaptation and format conversion between SMPTE 310M, ASI and IP directly on the CP505 simplifying the studio to transmitter link adaptation.

Dynamic PSIP generation

To resolve the challenges of updating the program guide the CP505 ATSC Processor supports Programming Metadata Communication Protocol (PMCP) described in the ATSC A76/B. Based on a PMCP XML file the CP505 generates sectioned TS packets containing PSIP tables and multiplexes these packets into the stream.

PSIP rebranding

Broadcasters can rebrand information in the VCT table such as the major and minor channel number by overriding existing VCT configuration on the fly. This operation requires minimum manipulations on the unit and can be achieved with only a few mouse clicks.

PSIP Editor

SI/PSIP tables can be edited directly using the built-in PSIP editor on the CP505 TS Adapter. The operator can modify, add or remove tables and service descriptors from the transport stream saving the costs of an external PSI/SI editing system.

Transport stream monitoring

In order to ensure error free processing, CP505 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.

Input redundancy

Reliability of the system can be increased using the Automatic Input Switching features. This input redundancy feature allows the unit to switch between redundant inputs (ASI and/or IP) based on TR101 290 pri1 alarms.

Transport stream over IP

The output transport stream is encapsulated according to SMPTE 2022-2 including the handling of FEC. (SMPTE 2022-1). The CP505 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 CP505 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.

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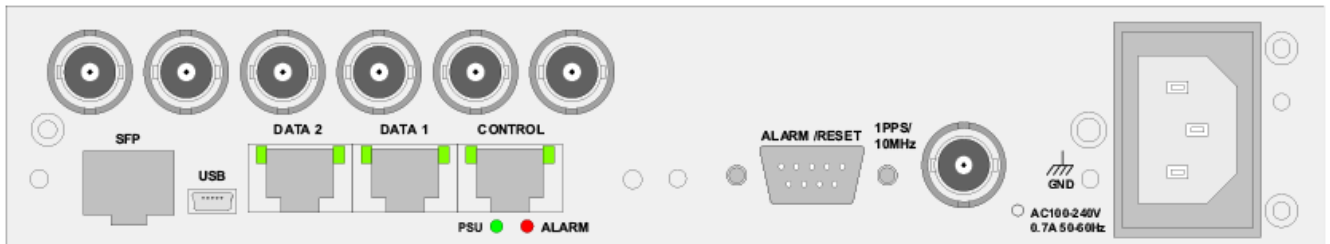
Transport stream interfaces

DVB-ASI	1-6 DVB ASI EN 50083-9, Annex B (2 inputs/ 4 output copies) Bit rate: 0.1 - 213 Mbit/s 188 or 204 byte packet length Burst and Spread mode Female BNC connectors 75 Ohm
SMPTE 310M	1 - 6 SMPTE 310M-2004 (2 inputs/ 4 output copies) 188 bytes packet length 19.39265 Mbit/s, ±2.8 ppm 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

Transport stream adaptation

IP smallcasting	Up to eight output copies on IP
FEC insertion	Variable matrix size for each output copy
Unicast to Multicast conversion	
Format conversion	ASI to IP, IP to ASI ASI to SMPTE310, SMPTE310 to ASI SMPTE310 to IP, IP to SMPTE310

Transport stream processing (optional)

TS Multiplexing	Rate adaptation (add/remove "null" packets) PID and service filtering and remapping Service component routing based on PID or component tag
PSI/SI/PSIP handling	Automatic table regeneration PSIP/PSI/SI download and playout Dynamic PSIP from PMCP file (A/76B) Create PSIP with built-in PSI/PSIP editor
VCT override	Short channel name, TSID, Source ID, major- and minor channel number
Conversion from ATSC to DVB Transport Streams	

Redundancy and monitoring

Input redundancy	Input switching on loss of signal and TR101 290 pri1 alarms
Input signal monitoring	TR 101 290 priority

Management & control

Management port	10/100 Base-T Ethernet Connector: RJ45
Element control through HTTP/WEB based GUI	
XML Configuration import and export via HTTP	
SNMP agent for integration with Network Management System (NMS)	
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, ½-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

Product options

CP505-AC2	Dual 230V power supplies
CP505-SFP + x	SFP modules for interface adaptation
CP505-SFP	Enable SFP socket
CP505-AFX	Advanced feature set including TS processing, PSIP caroussel, PSIP rebranding and rate adaptation
CP505-ISW	Automatic input switching for input redundancy
CP505-PSIE	PSI/SI/PSIP editor
CP505-PMCP	Dynamic PSIP EIT generation based on PMCP XML schedules.

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