# *STREAM* LINE
# *DVB-IP-Gateway*
# *OS xx*

## Product information


| *Features:* | |
|---|---|
| • Modular platform for DVB-MPEG Video streaming | • Multiple service CAM support |
| • Up to 6 DVB frontend modules | • MPEG-TS over UDP protocol |
| • Support for DVB-S, DVB-S2, DVB-C, DVB-T, DVB-ASI and DVB-Encoder | • Separate Ethernet port (10/100 Mb/s) for management interface |
| • MPTS/SPTS Remultiplexing and GigE aggregation | • Configuration via Webinterface |
| • 6 CI slots (supports professional CAMs) | • Contribution- and IPTV applications |

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## Description

### Concept

Stand-alone IP-streamer for DVB-transport-stream signals. The modular platform provides 6 input slots which can be fitted with various DVB front ends like DVB-S, DVB-T, S2, ASI, SDI or AV Encoder, etc. A dedicated common interface slot is available for each input signal stream. Each transport stream is encapsulated into IP packets. The integrated, manageable switch aggregates these DVB-IP transport streams to a GigE output stream, ready for contribution MPTS and distribution SPTS in carrier or hospitality networks respectively.

All features of the WISI OS streamer can be configured via a web interface which provides access to all RF and IP parameters as well as the decoder settings for the CI interfaces of the input signal sources.

The system creates MPTS and SPTS streams depending on configuration. Additionally it provides a session-announce-protocol and session-description-protocol which facilitates simple program selection for IPTV set top boxes.

The output stream can be routed through any protected IP infrastructure. A careful selection of manageable routers and switches is advisable to maintain QoS until it reaches the subscriber IP-TV STB.

### Common interface

6 CI slots are at your disposal. They are accessible from the front side of the unit. The CAM modules can be simple as well as professional CAMs. Professional CAMs , if supported by the content provider, have the advantage to open (descramble) more than one program per data stream. OS supports this feature up to as many programs per CAM stream as you are licensed to use by the provider.

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## Specifications Input modules

| | |
|---|---|
| **ASI in/out** | |
| ASI - receiver input | |
| Data format | DVB A010 ASI-C, EN50083-9 |
| Bitrate | 270 Mb/s |
| ASI mode | Burst or continuous |
| Packet framing | 188 / 204 byte per packet |
| Sensitivity | 200mV (p-p) |
| Max. signal level | 880mV(p-p) |
| Input impedance | 75 Ohm |
| Input return loss | > 17 dB (27-270 MHz) |
| Lock indicator | front panel LED |
| | |
| LVTTL - output | |
| Data format | DVB-SPI (LVTTL), EN50083-9 |
| Packet framing | 188 / 204 byte per packet |
| | |
| ASI - transmitter | |
| LVTTL - input | |
| Data format | DVB-SPI (LVTTL), EN50083-9 |
| Packet framing | 188 / 204 byte per packet |
| | |
| ASI - output | |
| Data format | DVB A010 ASI-C, EN50083-9 |
| Packet framing | 188 / 204 byte per packet |
| Bitrate | 270 Mb/s |
| ASI mode | Burst |
| Signal level | 800mV (p-p) |
| Input impedance | 75 Ohm |
| Deterministic jitter | 10% |

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**Specifications Input modules**

| **Audio-, Video Transportstream encoder** | | |
|---|---|---|
| Video - input | | |
| Input format | Composite PAL | |
| Input level | 1 Vpp | |
| Input impedance | 75 Ω | |
| Gain control | automatic gain clamped control | |
| Input anti aliasing filter | Notch or Comb | |
| Encoding standard | MPEG 2 ISO/IEC 13818-2 | |
| | MP@ML (4:2:2) | |
| Bit rate | 6 Mb/S | |
| Supported resolutions | Full D1, 3/4 D1, 2/3 D1 | |
| | 1/2 D1, SIF, QSIF | |
| Picture Size | horizontal | up to 720 pixel / 32 pixel steps |
| | vertical | up to 576 pixel / 32 pixel steps |
| Picture encoding type | I,P,B | |
| GOP structure | IIIIIIII , IPPPPPPPPP | |
| | IBPBPBPBP , IBBPBBPBB | |
| | | |
| Audio - input | | |
| Input format | Analog (left, right) 83-9 | |
| Input level | 500 mVeff / 600 Ohm | |
| Sampling frequency | 32 / 44,1 / 48 kHz | |
| Emphasis | 50 / 75µs / CCITT J.17 | |
| Encoding standard | MPEG 1 L1/2 ISO/IEC 13818-3 | |
| Bit rate | up to 448 kbit/s | |
| | | |
| Lock indicator | front panel LED | |
| | | |
| Transportstream - output | | |
| Transport stream | MPEG 2 | |
| System multiplexing | ISO/IEC 13818-1 | |
| Tables | PAT and PMT | |
| System bit rate | 27 MB/s | |
| Operation mode | CBR, VBR | |

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## Specifications Input modules

| | |
|---|---|
| **DVB-S2** | |
| Input impedance | 75 Ω |
| Input frequency range | 950 - 2150 MHz |
| Input frequency steps | 1 MHz |
| Input return loss | > 8 dB |
| IF-frequency/-bandwidth | none (Zero-IF) |
| Input level range | 47 - 70 dBµV |
| AFC | ± 10 MHz |
| Modulation scheme | QPSK, 8PSK |
| Symbolrate | 10 - 30 MS/s |
| Filtering | Nyquist √cos |
| Roll-Off | 20% / 25% / 35 % |
| FEC outer code | BCH, |
| FEC inner code | LDPC R=1/4,1/3,2/5,1/2,3/5,2/3,3/4,4/5,5/6,8/9, 9/10 |
| Data format | EN302307 |
| Spectral inversion | C-/KU band |
| Bitrate | 56 Mbit max. |
| Lock indicator | front panel LED |
| | |
| **DVB-S** | |
| Input impedance | 75 Ω |
| Input frequency range | 950 - 2150 MHz |
| Input frequency steps | 1 MHz |
| Input return loss | > 8 dB |
| IF-frequency/-bandwidth | none (Zero-IF) |
| Input level range | 47 - 70 dBµV |
| AFC | ± 5 MHz |
| Modulation scheme | QPSK |
| Symbolrate | 2 - 45 Ms/s |
| Filtering | Nyquist √cos |
| Roll-Off | 35 % |
| FEC inner code | Conv.,K=7,R=1/2,2/3,3/4,4/5,6/7,7/8,8/9 |
| FEC outer code | RS (204,188,8) |
| Spectral inversion | C-/KU-band |
| Interleaving | Conv.,I=12 |
| Lock indicator | front panel LED |

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## Specifications Input modules

| | |
|---|---|
| **DVB-T** | |
| Input impedance | 75 Ω |
| Input frequency range | 146 – 858 MHz |
| Input frequency steps | 250 kHz |
| Input frequency offset | 8 MHz +/- 166,67 kHz<br>7 MHz +/- 125kHz |
| Input return loss | > 9 dB |
| Input level range | 40 – 90 dBµV |
| IF-bandwidth | 7 / 8 MHz |
| Modulation scheme | QPSK, 16 QAM, 64 QAM |
| COFDM | 2k-FFT, 8k-FFT |
| Guard interval | 1/4, 1/8, 1/16, 1/32 |
| FEC | 1/2, 2/3, 3/4, 5/6, 7/8 |
| Lock indicator | front panel LED |
| **DVB-C** | |
| Input impedance | 75 Ω |
| Input frequency range | 47 - 862 MHz |
| Input frequency steps | 250 kHz |
| Input return loss | > 8 dB |
| Input level range | 45 - 75 dBµV |
| Spectral inversion | on, off |
| Modulation scheme | 16, 32, 64, 128, 256 QAM, |
| Symbolrate | 1,75 – 7,125MS/s |
| Lock indicator | front panel LED |

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## Specifications

### TS Processor

MPTS mode
- blocking of individual PIDs
- no modification of incoming (P)SI tables
- no SAP/SDP

Legend
SAP=Session Announce Protocol
SDP=Session Description Protocol

### Streamer module

SPTS mode
- up to 32 different SPTS, total bitrate of up to 90 Mbit/s
- each SPTS is synthesized from single components of the incoming TS
  e.g. Video, Audio, Teletext, Data
- dynamic creation of PAT, PMT, SDT
- dynamic creation of SAP/SDP (multicast)

Output

| | |
|---|---|
| Protocol | Ethernet |
| Transfer rate | 1000 Mb/s |
| Duplex mode | full |
| IP version | 4 |
| Streaming protocol | MPEG-TS over UDP |
| TS packet number | 7 |

### Standard compliance

| | |
|---|---|
| ISO 639 | Code for the Representation of Names of Languages |
| ISO/IEC 13818-1 | Information technology – Generic coding of moving pictures and associated audio informations - Systems |
| IETF RFC 791 | IP v4 |
| IETF RFC 768 | User Datagram Protocol (UDP) |
| IETF RFC 793 | Transmission Control Protocol (TCP) |
| IETF RFC 1065 | Structure and identification of management information for TCP/IP-based internets. SNMP v1 |
| IETF RFC 1066 | Management information base for network management of TCP/IP-based internets. SNMP v1 |
| IETF RFC 1067 A | simple network protocol. SNMP v1 |
| IETF RFC 1901 | Introduction to community-based SNMP v2 |
| IETF RFC 1908 | Coexistence between Version 1 and Version 2 of the internet standard network management framework. |
| IETF RFC 2616 | Hypertext Transfer Protocol (HPPT / 1.1) |
| ETSI EN 300421 | Digital Video Broadcasting (DVB); Framing structure, channel coding and modulation for 11/12 GHz satellite services. |

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| | | |
|---|---|---|
| | **Standard compliance** | |
| | ETSI EN 300429 | Digital Video Broadcasting (DVB); Framing structure, channel coding and modulation for cable systems. |
| | ETSI EN 300468 | Digital Video Broadcasting (DVB); Specification for Service Information (SI) in DVB systems. |
| | ETSI EN 300744 | Digital Video Broadcasting (DVB); Framing structure, channel coding and modulation for digital terrestrial television |
| **General data** | | |
| | RF-input / output | F-connector |
| | ASI-input | BNC-connector |
| | AV-input | BNC-/Cinch-connector |
| | IP-streaming | SFP |
| | Management/Control | RJ45 |
| | Housing | 19" 1RU |
| | Power supply | 230 VAC 50/60 Hz |
| | Operating temperatur range | 0°C ... + 50°C |

| Accessory | Electrical SFP Module | |
|---|---|---|
| | **OSFP 01 - Adaptor FCLF-8521-3** | |
| | Supply Current | 320 - 375 mA / 1.2W max power over |
| | Input Voltage | 3.13 - 3.47 V |
| | Maximum Voltage | 4 V |
| | Surge Current | 30 mA |
| | SFP Output LOW | 0 - 0.5 V |
| | SFP Output HIGH | host_Vcc - 0.5 - host_Vcc + 0.3 V |
| | SFP Input LOW | 0 - 0.8 V |
| | SFP Input HIGH | 2 Vcc + 0.3 V |
| | Line Frequency | 125 MHz |
| | Tx Output Impedance | 100 Ohm |
| | Rx Input Impedance | 100 Ohm |
| | Single ended data input swing | 250 - 1200 mV |
| | Single ended data output swing | 350 - 800 mV |
| | Rise/Fall Time | 175 psec / 20%-80% |
| | Tx Input Impedance | 50 Ohm |
| | Rx Output Impedance | 50 Ohm |
| | Data Rate | 10 - 1,000 Mb/sec |
| | Cable Length | 100 m |
| | Operating Temperature | 0 - 85 °C |
| | Storage Temperature | -40 - 85 °C |
| | I²C Clock Rate | 0 - 100,000 Hz |

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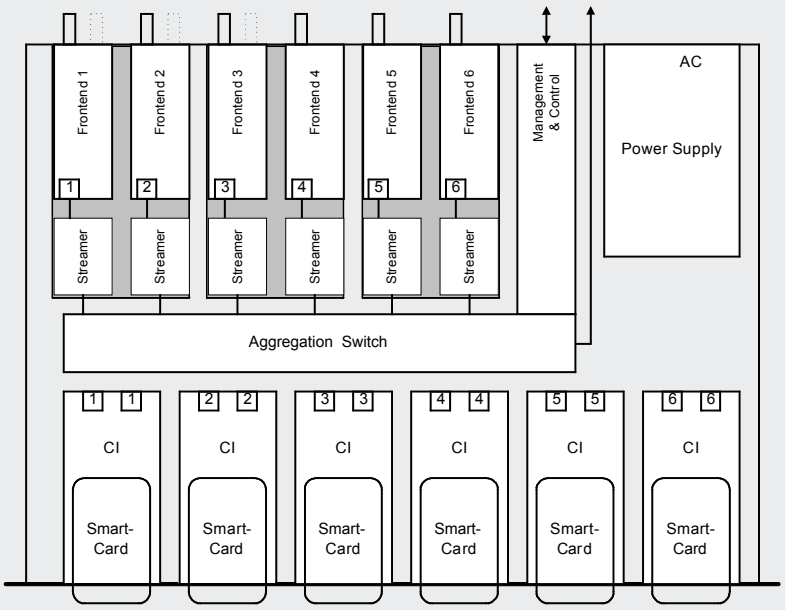
## Block diagram

**OS xx**



**Notes**

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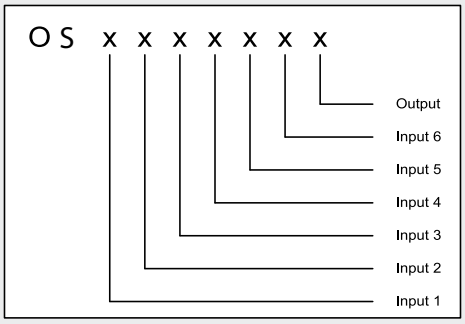
## Order informations




Legend
OSDS= OS-DualStreamer
OSCI= OS-CI modules

| Input: | |
|---|---|
| | 0 – empty |
| | 1 – DVB-S (single) |
| | 3 – DVB-S2 (single) |
| | 4 – DVB-T (single) |
| | 5 – DVB-C (single) |
| | 6 – AV - MPEG2 – Encoder (single) |
| | 7 – ASI – Input (single) |
| | 9 – Ethernet – Input (single) |
| | A – SDI-MPEG2-Encoder (single) |

| Output | |
|---|---|
| | 6 = 3 x OSDS + 0 x OSCI |
| | 7 = 3 x OSDS + 2 x OSCI |
| | 8 = 3 x OSDS + 4 x OSCI |
| | 9 = 3 x OSDS + 6 x OSCI |

## Application

1111119 = Streamer with 6 x DVB-S, 3 x OSDS + 6 x OSCI



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