

STREAM LINE

Transport Stream

Multiplexer

OT xx

Product information



NEW!
COFDM modulator
available

Features:

- Integrated 8 in 1 or 6 in 1 static multiplexer
- 6 variable front ends featuring:
 - Integrated receiver modules for DVB-S, DVB-S2, DVB-T, IP, DVB-C, SDI
 - Integrated AV to DVB encoders
 - Simulcrypt compliant ASI loop/input for external scrambler
- IP interface for configuration, monitoring, and analysis
- IP streaming output
- 4 CI slots (supports professional CAMs) for scrambled signal sources
- Integrated QAM or COFDM modulator

... a link to the future

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Description	
	<p>Concept</p> <p>OTxx is a modular platform for static transport stream re-multiplexing. Around a core processor with a stream switching backplane you can configure a vast variety of input modules, CI slots and output options such as QAM/COFDM or ASI. Incoming streams can be routed to the corresponding core inputs directly or after passing the CAM modules. The core then selects the pre-configured parts of the streams and combines them to the desired output stream while correcting all essential SI tables and timing issues. This means you can combine selected parts of very complex streams as well as building your own stream from basic Audio Video sources without additional external equipment. Avoiding external receivers or encoders makes OTxx a very cost effective, space saving, easy to handle, and reliable multiplexer.</p> <p>TS Analyzer</p> <p>OTxxx features an IP interface through which all settings can be accomplished on a graphical user interface running on your PC. In order to determine the settings you need to analyze the incoming streams and their content and then make your configuration. All data streams inside the OTxx can be monitored and analyzed locally. For Factory support the IP interface can be utilized to record a certain length of data stream and send it to the service department for advice. Likewise your configuration files can be extracted and sent for support. This feature greatly helps to get a quick start in understanding and building your own digital multiplexes.</p> <p>Common interface</p> <p>4 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. OTxx supports this feature up to as many programs per CAM stream as you are licensed to use by the provider.</p> <p>Mux Core</p> <p>The actual multiplexer core performs the miracle of selecting and combining the programs you have defined in the configuration file over the interactive graphical user interface. It filters unwanted programs or parts of a programs such as unwanted language streams or wrong Teletext. Then it corrects or rebuilds the PIDs to avoid redundancy and finally corrects the clock references to form a complete digital package to feed to your subscribers.</p>

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Specifications Input modules	
ASI in/out, ASI dual in	
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
LVTTTL - output	
Data format	DVB-SPI (LVTTTL), EN50083-9
Packet framing	188 / 204 byte per packet
ASI - transmitter	
LVTTTL - input	
Data format	DVB-SPI (LVTTTL), 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	IIIIIII , IPPPPPPPP
	IBPBPPBPB , 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 dB μ V
AFC	\pm 10 MHz
Modulation scheme	QPSK, 8PSK
Symbolrate	10 - 30 MS/s
Filtering	Nyquist $\sqrt{\cos}$
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, DVB-S dual

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 dB μ V
AFC	\pm 5 MHz
Modulation scheme	QPSK
Symbolrate	2 - 45 Ms/s
Filtering	Nyquist $\sqrt{\cos}$
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 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
SDI-MPEG Encoder	
Video input	
Input format	SDI SMPTE 259M-C 270 Mbit/s 625Z with embedded audio SMPTE 272 M-A
Input level	200 mVpp without equalizer
Input impedance	75 Ω
Encoder	
Encoding standard	MPEG 2 ISO/IEC 13818-2 MP@ML (4:2:0)
Bit rate	1.5 ... 9 Mbit/s
Supported resolutions	Full D1
Picture encoding	type I,P,B
GOP Structure	IIIIIII , IPPPPPPPPP IBPBPBPBP , IBBPBBPBB

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Specifications Input modules		
	SDI-MPEG Encoder	
	Audio input	
	Input format	Analogue (left, right) or digital (SDI with embedded Audio)
	Input level	0 dBm / 600 Ohm
	Encoder	
	Encoding standard	MPEG 1 L1/2 ISO/IEC 13818-3
	Bit rate	up to 192 kbit/s
	Emphasis	none
	Mode	Stereo, joint stereo, dual, single
	Sampling frequency	48 kHz
	IP Module	
	Ethernet input	
	Interface	10/100 Base (RJ45)
	Frame Format	Ethernet II
	Rate	10/100 Mbps autosensing
	Protocol	UDP/IP, ARP, ICMP(ping), IGMPv2
	Ethernet transmitting	Unicast, Multicast
Specifications OT xx		
	Transportstream remultiplexer	
	Number of inputs	6 or 8
	Number of PID filters	254 / input
	Number of PID re-mappers	128 / input
	Data rate	0.008 ... 56 Mb/s
	Tuning steps	8 bit/s
	Accuracy	$< 1 \times 10^{-4}$
	Tables handled	PAT, PMT, SDT, NIT
	PAT repetition time	40 - 500 ms
	Overflow indicator	front panel LED
Software	IP output license OT 99	

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Specifications modulators modules	
QAM modulator	
Output impedance	75 Ω
Output frequency range	45 – 862 MHz
Output frequency steps	500 kHz
Output frequency stability	\pm 30 kHz
Output level	single QAM 99-89 dB μ V (1 dB steps) dual QAM 96-86 dB μ V (1 dB steps)
Output level stability	\pm 1 dB
Output return loss	\geq 14 dB
Modulation	16-, 32-, 64-, 128-, 256-QAM
Symbol rate	1,0 – 7,499 MS/s
Filtering	Nyquist $\sqrt{\cos}$
Roll-Off	15 %
FEC outer code	RS (204,188,8)
Spectral inversion	normal / inverted
MER	> 42 dB
S/N	> 44 dB
Shoulder attenuation	> 56 dB
Interleaving	Conv., I=12
Spurious emissions	
inside TV-channels	> 56 dB
outside TV-channels	> 50 dB
Test point front panel	- 20 dB
COFDM modulator	
Output frequency range	45-862 MHz
Output attenuation	0-16 dB
MER	\geq 36 dB
Modulation	QPSK, QAM16, QAM 64
FEC	1/2, 2/3, 3/4, 5/6, 7/8
Guard interval	1/4, 1/8, 1/16, 1/32
COFDM	2k-FFT, 8k-FFT
Bandwidth	5, 6, 7, 8 MHz
Output level	58-74 dB μ V
Shoulder attenuation	> 50 dB
Standard compliance	ETSI EN 300744 V1.51 Digital Video Broadcasting (DVB); Framing structure, channel coding and modulation for digital terrestrial television

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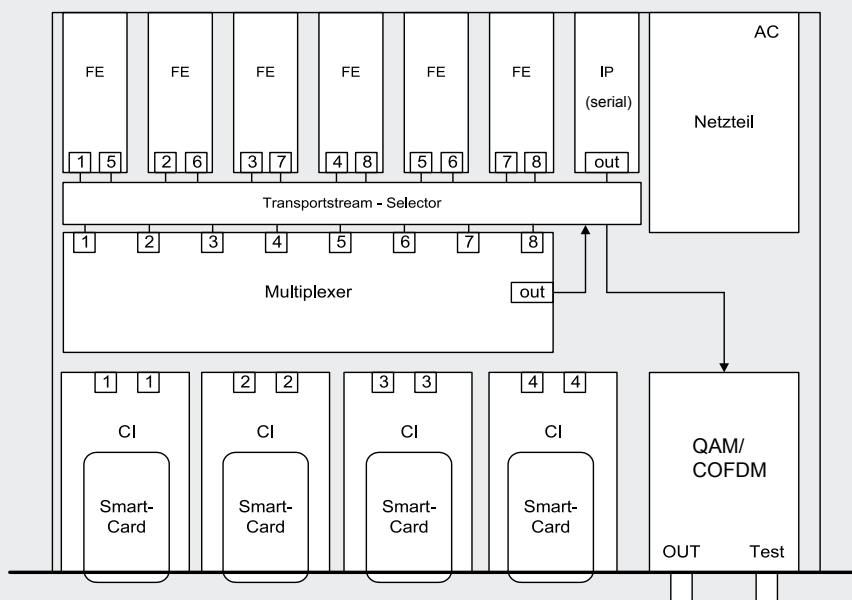
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Block diagram

OT with 8 in 1 static multiplexer



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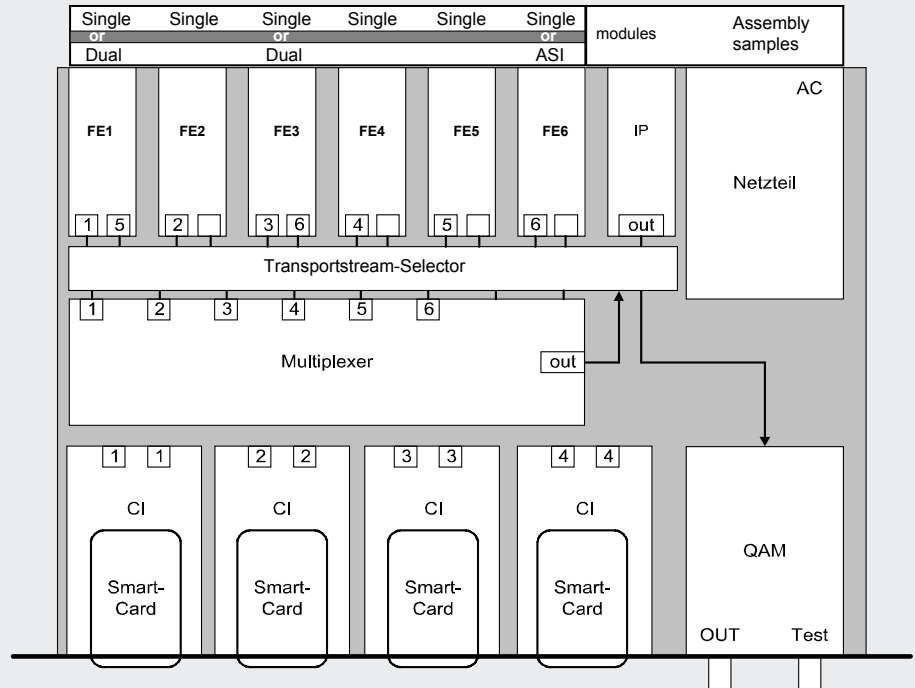
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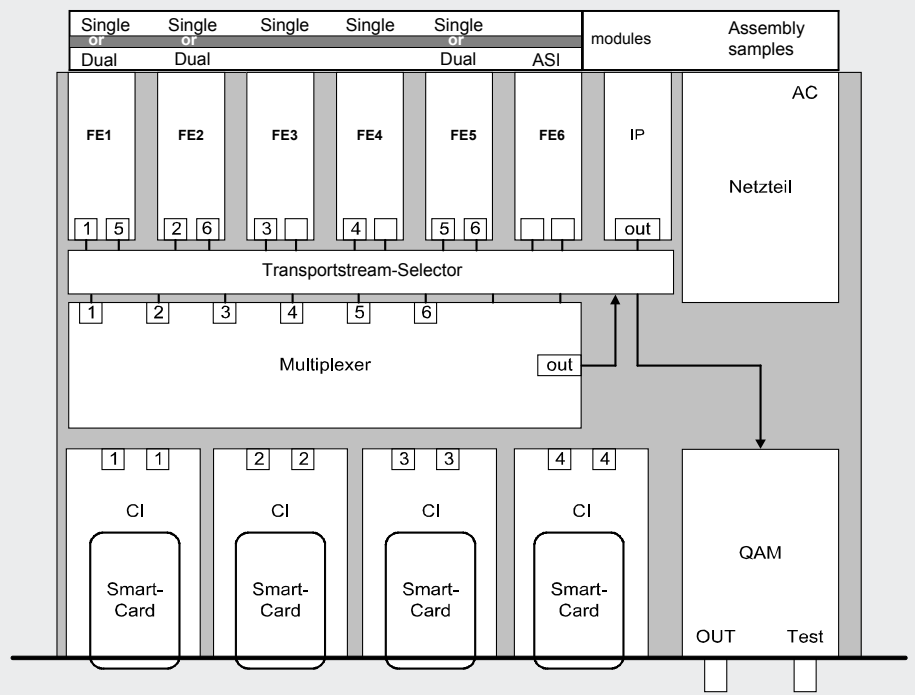


Block diagram

OT with 6 in 1 static multiplexer, Version 4816
(refer to table for more samples)



OT with 6 in 1 static multiplexer Version 4826
(refer to table for more samples)



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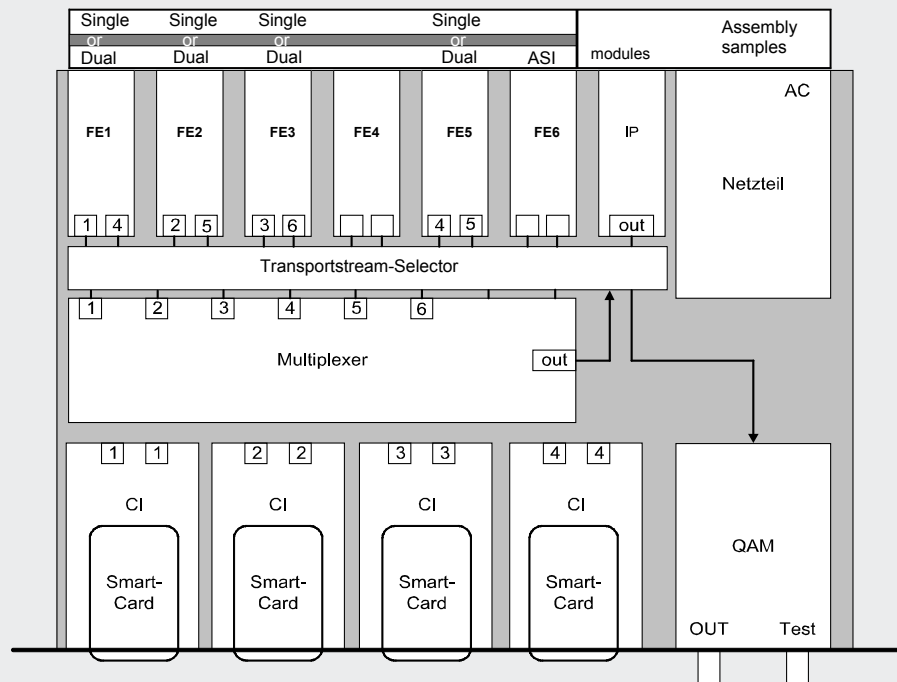
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Block diagram

OT with 6 in 1 statical multiplexer, Version 4836
(refer to table for more samples)



Version	FE1	FE2	FE3	FE4	FE5	FE6
4816	Single	Single	Single	Single	Single	Single
4816	Single	Single	Single	Single	Single	ASI loop
4816	Single	Single	Dual	Single	Single	ASI loop
4826	Single	Single	Single	Single	Dual	ASI loop
4826	Dual	Dual	Single	Single	n.c.	ASI loop
4826	Single	Dual	Single	Single	Single	ASI loop
4836	Dual	Dual	Dual	n.c.	n.c.	ASI loop

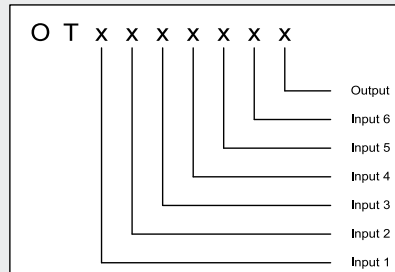
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Order informations



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

- Output:
- 0 – QAM without CI
 - 1 – COFDM without CI
 - 2 – QAM with 2 CI
 - 3 – COFDM with 2 CI
 - 4 – QAM with 4 CI
 - 5 – COFDM with 4 CI
 - 6 – Dual-QAM with 2 CI (no Remux)
 - 8 – Dual-QAM with 4 CI (no Remux)
 - A – Dual-QAM without CI (no Remux)
 - C – no Modulator without CI (no Remux)
 - D – no Modulator with 2 CI (no Remux)

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