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ANTENNENTECHNIK GmbH

Professional Headend Solutions

19'' PREMIUM HEADEND

EMA 207	4-way MPEG-Encoder/Multiplexer
MXA 107	8-way Multiplexer
SCA 107	DVB Scrambler
AMA 299	QAM Modulator
VMA 191	Audio/Video Modulator
MSA 108 S/T/C/A	Twin DVB to IP Streamer

PREMIUM HEADEND SYSTEM

■ **A-LINE series featuring MPEG Encoder, Multiplexer, Scrambler, Modulators, and IP Streamers**

■ **High end solutions especially for cable TV, broadband and broadcast architectures**

■ **Extrem low amplitute and phase noise assured by using fractional N and PLL technology**

■ **Outstanding signal values for best picture quality and stability**
   - **Output level of max. 14 dBm (123 dBµV)**
   - **Signal to Noise ratio (S/N) of   67 dB**
   - **Modulation Error Rate (MER)   45 dB**

■ **Support of PID filtering & remapping, PSI-/SI processing**

■ **Output level monitoring options**

■ **Flexible and easy local or remote configuration via webserver (TCP/IP)**

■ **Integrated SNMP monitoring**

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Multi Digital Encoding/Multiplexing

■ EMA 207 4 WAY MPEG-ENCODER/MULTIPLEXER

managed by
SNMP

The new **EMA 207** is a professional, flexible and cost effective 4 way Encoder/Multiplexer that combines encoding and multiplexing in one unit and provides excellent video quality and performance.

This module offers an efficient solution for encoding of up to 4 Audio/Video or SDI signals into one digital ASI Transport stream and is ideally suited for cable TV headends as well as for broadcasting and playout applications.

The **EMA 207** is also equipped with a seperate ASI input interface intendend for cascading a specific number of **EMA 207** modules to create a digital ASI-TS with multiple services. The ASI interface of the first module in the cascade (Master) can also be used to insert any other ASI-TS which makes this unit a most flexible solution for future digital networks.

The **EMA 207** has an integrated webserver (TCP/IP) and features easy local and remote access and configuration.

- ■ **4-way MPEG-Encoder/Multiplexer**

- ■ **Easy and high quality encoding and multiplexing of 4 A/V or SDI to ASI-TS**

- ■ **Cascading of max. 8 devices for flexible and reliable architectures**

- ■ **Additional ASI-TS insertion possible while the received ASI transport stream can be processed**

- ■ **Transparent Teletext- and service data transmission (VPS, WSS)**

- ■ **Audio level and video adjustments**

PREMIUM HEADEND SYSTEM

Encoder, Video	
Standard	PAL, SECAM, NTSC (50/60 Hz)
Compression	MPEG-2 (MP@ML)
Format/Size	720 x 576 Pixel
System Bit rate	1024...15000 kbps
	(individually adjustable per channel)
	(depends on total bandwidth and
	number of channels)

Encoder, Audio	
Compression	MPEG-1 Layer 2
Sample frequency	48 kHz, stereo
Bit rate	64...384 kbps

Transport stream Output	
Protocol	DVB ASI, burst or interleave mode
Connector	1 x BNC/75 Ω/800 mV$_{pp}$
Bit rate	1...214 Mbps,
	adjustable (1 kbps steps)
Channels within TS	1-4 per unit
	max. 8 units can be cascaded

Transport stream Input	
	DVB ASI for transport streams
	of max. 214 Mbps (burst- or interleave
	mode) with program filter/ Input by
	multi unit configuration

A/V Inputs	
Video IN :	4 x BNC 75Ω (analog 1 V$_{pp}$/SDI 0.8 V$_{pp}$)
	FBAS/analog audio switchable to
	SDI (270 Mbps)/audio embeded
	or analog audio
Audio IN:	4 x DIN 45326 socket
	8-poles/stereo
	600 Ω /10 kΩ symmetrically

Remote control	
Adjustments	Web-Interface per Ethernet IP
	Provision of a MIB parameter file

Extensions	
Cascading	Several EMA Encoders can be
	casaded via the ASI interface so to
	create one DVB Transport stream.

Special functions	
Teletext, VPS, WSS	Transparent transmission of teletext
	signals, conversion and transmission
	of VPS- and WSS signals.
	Own creation of teletext (option)

Physical values	
Weight	4550 g

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8 WAY MULTIPLEXER

■ MXA 107 MULTIPLEXER

The new **MXA 107** Multiplexer is placed in a 19" 1RU chassis. This unit is designed for today's and future digital broadband, broadcast and playout applications.
The **MXA 107** allows multiplexing of single and multi program transport streams from 8 ASI inputs to two independently operating ASI output transport streams.

The input capacities for each ASI port are 256 PID's @ 130 Mbit/s.
The output capacities are 512 PID's @ 90 Mbit/s (64 PID's taken from each ASI input).

Specially designed software avoids unauthorized access and provides a measurement option to evaluate output data rates in real time.

The **MXA 107** is equipped for remote and on site access/control and can be integrated in any IP administration structure via Ethernet interface. A local configuration is possible via front panel.

- ■ **Flexible and reliable Multiplexer for all digital network architectures**

- ■ **Receiving, Processing & Multiplexing of 8 ASI transport streams**

- ■ **Two independent ASI outputs (512 PID's @ 90 Mbit/s) enables delivery of max. 4 QAM channels**

- ■ **256 PID's @ 130 Mbit/s per ASI Input maximum**

- ■ **PSI-/ SI processing, PID remapping, PID editor**

- ■ **Easy and secure remote and on site configuration**

ASI Input

Interface	8 Standard ASI Ports
Impedance	75 Ω
Data rate	up to 130 Mbps
Max. PID per input	256
Input packet length	188 or 204 bytes
Connector	BNC socket

Control port

Ethernet	RJ 45

ASI Output

Output interface	2 independent multiplexed ASI Output, Ports in pairs
Connector	BNC socket
Impedance	75 Ω
Output packet length	188 bytes
Data rate max	2 x 90 Mbps

Control/Data/Monitor

Local	7 front panel keypads
Display	LCD
Remote	Ethernet (TCP/IP)

Software Updates

Remote	via Ethernet (TCP/IP)

Operating parameters

Power	85…264 V, 50/60 Hz
Power consumption	30 W

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BLANKOM SCRAMBLER

■ SCA 107 DVB SCRAMBLER

NEW

The new **SCA 107** Scrambler is placed in a 19" 1RU chassis and designed as an open scrambler for today's and future digital network applications while it facilitates the transition to proprietary digital solutions and digital subscriber management.

The **SCA 107** is an open scrambler and is prepared for the cooperation with most DVB simulcrypt compliant CA – system and various subscriber management systems.
This unit provides a wide range solution for a cost efficient CA integration even for small and medium sized CATV networks and enables customer access and administration as well as flexible revenue generating possibilities when delivering scrambled Pay-TV channels.

The **SCA 107** is equipped with an ASI in- and output @ 54 Mbit/s and can be operated locally or remotely.

The key pad on the front panel allows all main settings and two Ethernet interfaces assure that a physical separation between management IP network and CAM network is given.

- ■ **Complete DVB compliant scrambler**

- ■ **Supports most CA and subscriber management systems**

- ■ **Equipped with ASI in- and outputs and ASI loop**

- ■ **Max. 54 Mbit/s input and output data rate**

- ■ **Supports local and remote access and configuration**

- ■ **Two separate IP interfaces (1 for unit configuration, 1 for CA communication)**

ASI Input	
Interface	1 Standard ASI Port (BNC)
Impedance	75
Packet length	188 or 204 bytes
Data rate	max. 54 Mbps

ASI Input Loop	
Interface	Standard ASI Port (BNC, paired)
Packet length	188 or 204 bytes
Impedance	75

Output	
Interface	Standard ASI Port (BNC, paired)
Impedance	75
Packet length	188 or 204 bytes
Data rate	max. 54 Mbps scrambled

Control/Data/Monitor	
Local	7 buttons and a LCD
Remote	Ethernet (TCP/IP) via NMS
Data port	Ethernet (TCP/IP)
Interface	2 x Rj45; 10/100

Software Updates	
	Ethernet (TCP/IP)

Operating parameter	
Current	85…264 V, 50/60 Hz
Power consumption	15 W

Physical information	
Weight	2500 g

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HIGH END QAM MODULATOR

■ AMA 299 FREQUENCY AGILE QAM MODULATOR

The **AMA 299** agile QAM Modulator is especially designed for enabling cable operators to implement high quality QAM channels for digital cable transmission into their network.
The module accepts any ASI transport stream for modulation into QAM/RF and supports the QAM standards DVB-C & ITU J. 83 Annex A,B,C.

The **AMA 299** integrates a state-of-the-art QAM Modulator and an agile Upconverter and provides best RF performance and excellent values for perfect video quality even in big sized networks, guaranteed by low phase noise of typ. 92 dB @ 1 kHz, high output level of 123 dBµV and best MER of 45 dB.

The module provides features like PSI-/SI processing, PID filtering and continuous zero stuffing assuring an optimal bandwidth utilization.

Front panel keypads and display allow easy local configuration and the module is also equipped with an Ethernet-Interface for remote access and configuration via TCP/IP standard.

- ■ **Equipped with high quality QAM Modulator and high performance Upconverter (MER 45 dB, Phase noise of 92 dB @ 1 kHz, output level 123 dBµV)**

- ■ **PSI-/SI processing with NIT generation, PID filtering with table processing**

- ■ **Supports QAM standards DVB-C and ITU J. 83 Annex A,B,C**

- ■ **External IF-Interface, ASI loop and alarm contacts**

- ■ **Easy local and remote access and configuration / SNMP**

PREMIUM HEADEND SYSTEM

ASI Input
Level range	200...880 mV$_{pp}$
Connector/Impedance	BNC socket/75 Ω
ASI-Polarity	regular/inverted

ASI Output
Level	800 mV$_{pp}$ (+/- 10 %)
Connector/Impedance	BNC socket/75 Ω
ASI-Polarity	regular

ASI Signal processing
Data rate	0.625...210 Mbps
ASI Transmission mode	
Input	continuous, burst
Output	burst
TS Transmission mode	
Input/Output	188, 204 Byte
Signal processing	EN 50083-9

RF Output
Output frequency range	45...862 MHz
Tuning grid	125 kHz
Max. output level	14 dBm (123 dBµV)
Phase noise	typ. 92 dB @ 1 kHz
Level adjustment range	-10...+14 dBm

Channel allocation		adjacent channel ability
Connector/Impedance	RF	F socket (75 Ω)
	IF	BNC socket (75 Ω)
Return loss		-1.5 dB/Octave

QAM Modulator
Symbol rate	1.0...7.2 MSps
QAM Modulation	ITU-T J.83 Annex AB/C, DVB-C
Test-/measurment signals	acc. adjusted symbol rate and QAM constellation
Measurment signal	unmod. carrier (signal level)
Shoulder attenuation	55 dB (14 dBm)
	58 dB (11 dBm)

Operating parameter
Power consumption	18 W

Test Output
Test Output	-30 dB

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PREMIUM QUALITY MODULATOR

■ VMA 191 Audio/Video Modulator

NEW

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The new **VMA 191** is an agile state-of-the-art Audio/Video Modulator in a compact 19" 1RU design.

The unit accepts any Audio/Video signal from satellite receivers, TV demodulators, TV cameras, videotape recorders or any other A/V source and modulates the A/V signal into an analog TV program which can be allocated within any band of the RF freqency range (45...862 MHz).

The **VMA 191** is therefore ideally suited for big cable operators but also for medium- and small private operators and community networks for transmitting Audio/Video signals as an analog-TV channel via their networks where it is relevant to consider high RF output performance and perfect video quality.

Front panel keypads and display allow easy local configuration and the module is also equipped with an Ethernet-Interface for remote access and configuration via TCP/IP standard.

■ **Modulation of any A/V source into an analog CATV channel (45...862 MHz)**

■ **High flexibility generated by frequency agility**

■ **Easy local and remote operation and configuration /SNMP**

■ **External IF-Interface and alarm contacts**

■ **Excellent system performance and video quality**
   - **S/N   67 dB**
   - **Ouput level of max. 123 dBµV**

PREMIUM HEADEND SYSTEM

Video Input	
Input voltage with AGC	0.8...1.3 V_{pp}
Input voltage without AGC	1 V_{pp}
Impedance	75
Connectors	BNC socket
Input filter (disconnectable)	5 MHz low pass
Clamping (switchable)	soft/hard
AGC	disconnectable

Audio Input	
Input level	- 8...+ 7 dBm
Input impedance (switchable)	0.6/12 k
Connectors	8-poles/pins DIN 45326 (IEC 130-9-20)
Configuration (switchable)	unsymm./symm.

TV Output		
Output frequency range		45...862 MHz
Adjustment grid		10 kHz
Output level		max. 14 dBm (123 dBµV)
Signal to noise ratio (S/N)		67 dB
Level adjustment range		-10...+14 dB
Channel allocation		adjacent channel ability
Connectors	RF	F socket (75)
	IF	BNC socket (75)
Return loss		18 dB 45 MHz
		1,5 dB/Octave

Operating parameters	
Power consumption	12 W

Physical values	
Weight	3500 g

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HIGH QUALITY IP STREAMERS

■ MSA 108 S/T/C/A

NEW

Digital TV, HDTV, VOD, diversity of programs and flexible creation of customized program packages provide great opportunities for future oriented digital media delivery.

The **MSA108** IP streamer series combines the advantages and quality of Digital TV with the opportunities and capacities of IPTV and features an unique and advanced IPTV and Video over IP headend platform.

The **MSA 108** is a high performance TWIN DVB to IP streamer and the core component of each IPTV and Video over IP headend architecture.

This TWIN DVB to IP streamer combines dual DVB tuners, dual Common-Interface slots and a multiplexer in one unit and enables processing and streaming of the selected transport stream via the IP interface.

The **MSA 108** is perfectly designed for future oriented IPTV and Video over IP architectures and ideal for any broadcast and playout application.
The unit can be access and configured locally and remotely.

KEY BENEFITS

ECONOMICAL - FLEXIBLE - RELIABLE
Receiving, descrambling, multiplexing and streaming in one unit
Easy integration with ecosystem via open XML interface (SDK)
Low maintenance and operation costs

EXCELLENT CHANNEL PERFORMANCE
2 DVB tuners per MSA 108 (4 ASI interface avaialbe for **MSA 108** A)
Max. 60 encrypted pay-tv or Free to Air channels, streamed via one unit
High scalability with flexible channels

CARRIER GRADE REDUNDANCY
Features N+1 configuration with redundancy (option)
Monitoring and management through MSA Manager

ADVANCED EDGE BROADCAST MANAGEMENT BENEFITS
PSI/SI processing for dynamic service delivery
PID filtering/remapping, SID remapping
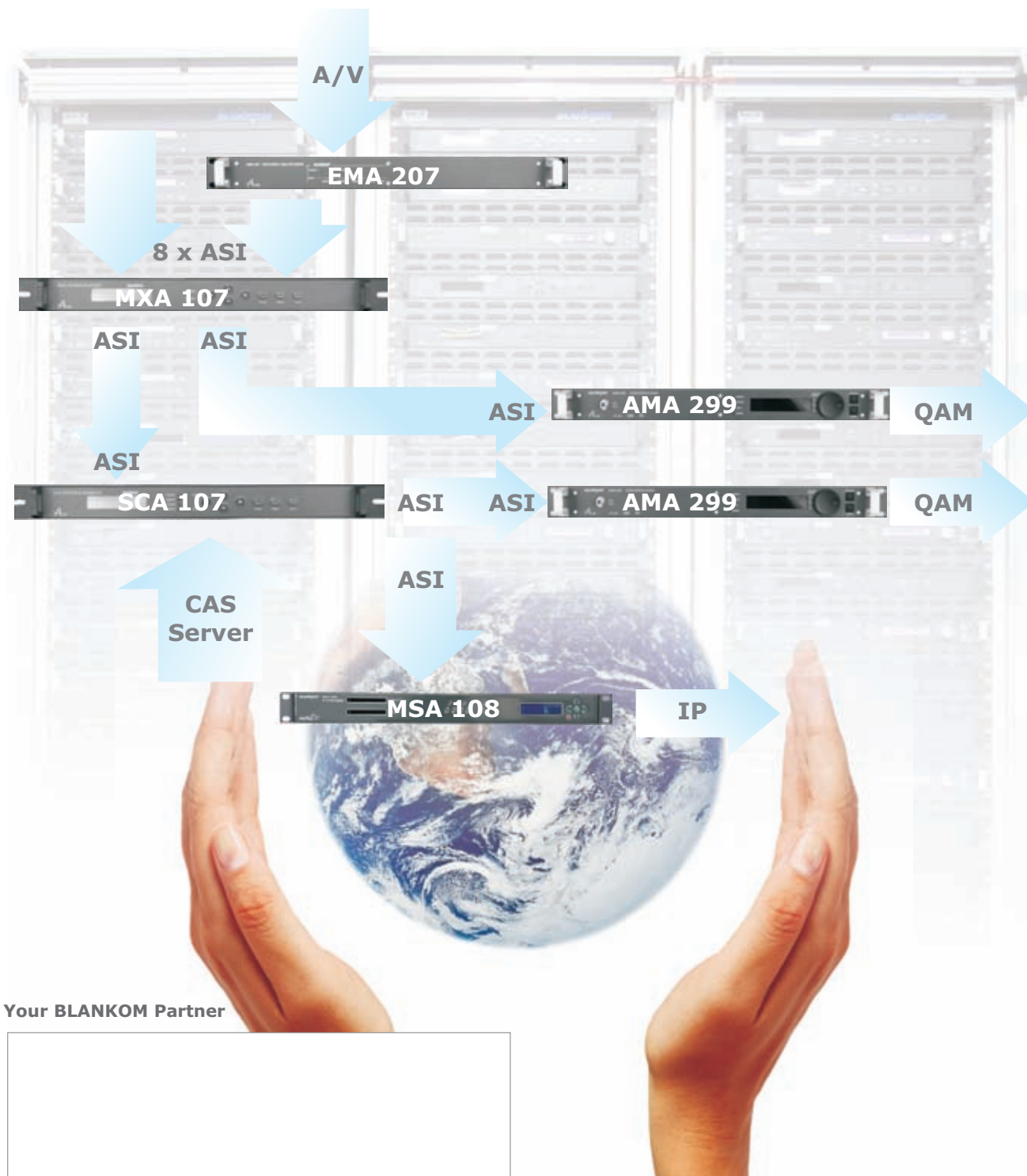2 CA-Module slots for Multi-Services-Decryption

NUMEROUS APPLICATIONS

- Live TV broadcast and playout
- Flexible channel stream adaption
- Decryption of Pay-TV channels

PRODUCT OVERVIEW

	Inputs	Format	Descrambling
MSA 108S	2	DVB-S /DVB-S2	Yes
MSA 108T	2	DVB-T (COFDM)	Yes
MSA 108C	2	DVB-C (QAM)	Yes
MSA 108A	4	DVB-ASI	No

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Typical digital Headend architecture

PREMIUM HEADEND SYSTEM

A/V

EMA 207

8 x ASI

MXA 107

ASI   ASI

ASI   AMA 299   QAM

ASI

SCA 107   ASI   ASI   AMA 299   QAM

CAS
Server   ASI

MSA 108   IP

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