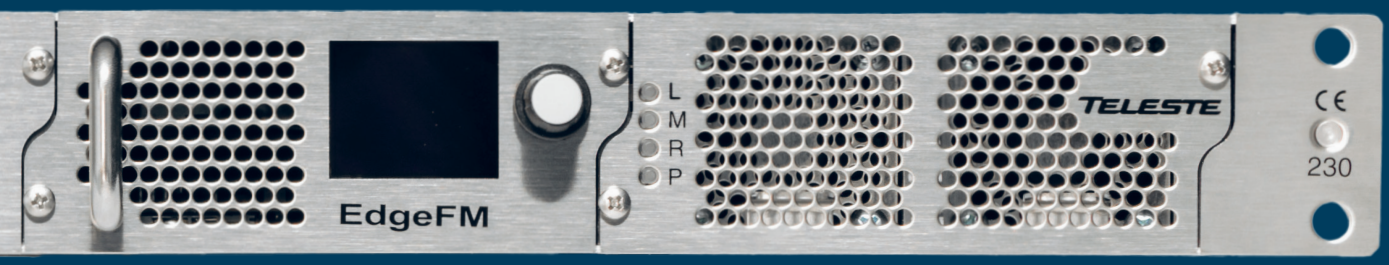


Video headend products

PALOMINO II
IP TO ANALOG TV AND FM CONVERTER

Teleste Palomino II platform can host several IP-to-analog TV and IP to FM modules. The former provides high quality analog TV signal in various modulation standards, and the latter ensures high quality FM radio transmission in cable networks. The digital design makes top class performance and operation possible in every condition.

The Palomino II can manage 24 TV channels and 40 radio channels in 1 RU compact housing. The unit receives IP streams in SPTS and MPTS formats, demultiplexes and decodes the received channels and finally broadcasts the modulated signals. The device configuration and management are done with an intuitive web user interface and the device can also be monitored with SNMP.

TELESTE

VIDEO HEADEND PRODUCTS

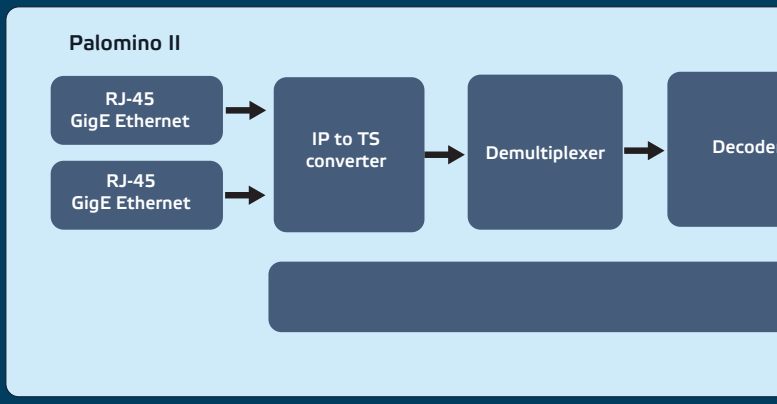
PALOMINO II
IP TO ANALOG TV AND FM CONVERTER

The versatile Palomino II provides a comprehensive set of parameters through monitoring signals and the unit status. Features like power supply redundancy, IP input stream redundancy, and Dolby AC3 decoding are supported by default. The fully digital TV and Radio modulators ensure superior performance over the whole RF output spectrum enabling high quality video and audio performance when compared with conventional designs.

IP streaming input and stream multiplexing
The Palomino II supports numerous input formats: unicast, multicast,and source specific multicasting in both CBR and VBR modes. The redundant IP streaming is received through a reserved RJ45 connector. Stream level input redundancy is also supported.

The transport stream demultiplexer receives the streams from the IP streaming input. It demultiplexes the services and routes them to the selected decoders. The demultiplexer can handle 8 IP to TV SPTS/MPTS streams and 16 IP to FM SPTS/MPTS streams with bit rates up to 62.5 Mbit/s.

Palomino II Quad CI (Common interface)
Each video module has 4 common interface slots for channel descrambling and flexible input stream routing over CI slots. Each CI slot can be allocated to its own stream or they can be daisy chained allowing numerous routing options for channel descrambling. The reliable descrambling is secured by monitoring the descrambling status and taking corrective actions automatically.

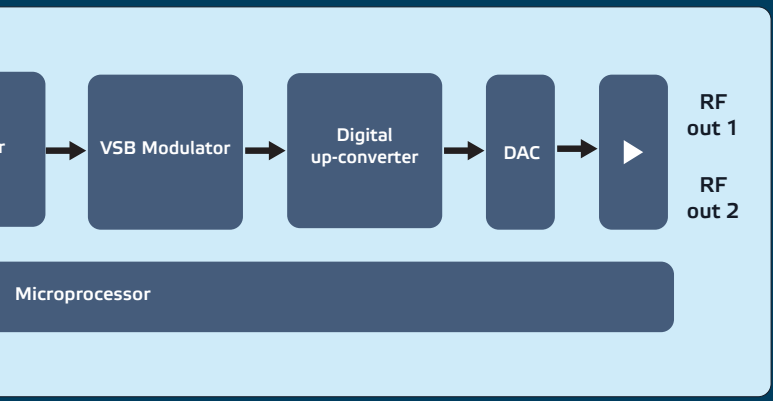


Key features of IP to analog TV converter:

- 8 pcs IP SPTS/MPTS inputs
- 8 decoders with MPEG2, H.264 HD, SD decoding
- Automatic HD to SD downscaling
- MPEG-1 layer II, MPEG-4 AAC LC, AC3 audio decoding with different sampling rates and audio modes
- Automatic picture insertion or video switch off during decoding errors
- 8 individually adjustable TV channels
- Multisystem (B/G, D/K, I, L, M) support
- Mono, NICAM, and analog stereo audios
- High quality VSB modulation
- Full frequency agility per RF output port
- In -chassis power supply redundancy and input stream redundancy

Key features of IP to FM converter:

- 16 pcs IP SPTS/MPTS inputs
- 20+20 MPEG1 layer II decoders
- RDS data extraction
- RDS sub carrier with possibility to switch off
- 20+20 FM channels individually adjustable
- Full frequency agility per RF output port
- RF output level monitoring
- In -chassis power supply redundancy and input stream redundancy



MPEG decoding

The Palomino II can decode MPEG-2 and H.264 encoded video streams in SD and HD quality. In case of HD decoding, automatic downscaling to SD resolution is performed. Numerous audio formats and modes can be decoded and modulated to analogue mono and stereo on TV channels. Dolby Digital AC-3 down conversion is available as a standard feature.

One feature of the product is on screen text insertion that includes a selectable positioning, text and background colours plus direction and scrolling speeds. Automatic transcoding of teletext to analog format is also supported. The MPEG decoder has teletext and DVB subtitling with language selection.

In IP to FM, the MPEG decoder is capable of decoding MPEG-1 layer II audio streams. In addition there is data extraction for RDS.

Full frequency agility per RF output port

The digital design ensures a high agility inside the whole RF output frequency range. This enables full flexibility and makes the most efficient use of the available channel spectrum. This allows a 4 channel block to be fully agile inside of the 80MHz band between 45 to 862 MHZ. The Palomino II has full agility inside the 87.5-108 MHz radio frequency band.

IP TO ANALOG TV CONVERTER		IP TO FM CONVERTER	
Common interface (Quad CI module)		**MPEG decoder (Audio)**	
CAM interface	PCMCIA (EN50221)	Supported codecs	MPEG-1 Layer II (ISO/IEC 11172-3)
TS bitrate per CAM	71 Mbit/s max.	Bit rates	Up to 384 kbit/s
MPEG decoder (Video)		Sampling rates	32, 44.1 and 48 kHz
Supported codecs	MPEG 2MP@HL, H264/AVC Level 4.1 HP	Audio modes	Stereo
Supported colour systems	PAL, NTSC, SECAM (with cross colour filter)	**FM modulator**	
Bit rates	1...40Mbit/s	Modulation	Digital FM modulation with RDS carrier
Subtitling	DVB, teletext	S/N unweighted	70 dB
Signalling	VPS (line16), WSS (line23)	Stereo crosstalk attenuation	60 dB
MPEG decoder (Audio)		Harmonic distortion	< 0.05 %
Supported codecs	MPEG-1 Layer II (ISO/ IEC 11172-3), MPEG-4 AAC LC (ISO/IEC 14496-3) (Only 1st audio)	Frequency response 40...15000 Hz	< 1 dB
Bit rates	Up to 384 kbit/s MPEG 1 Layer II Up to 192 kbit/s MPEG-4 AAC LC	**RDS**	
Sampling rates	32, 44.1 and 48 kHz	Carrier	57 kHz
Audio modes	Stereo, mono, dual tone, dual tone with 2 PIDs, joint stereo	Modulation	BPSK
TV modulator		Data speed	1187.5 bps
Modulation systems	PAL B/G, PAL D/K ,PAL I, SECAM D/K, SECAM L, NTSC M	Static	TP/PI/RT/PS 8x8 characters
Video modulation: Output format Scaling	 4:3, 16:9, 14:9 Pillarbox or letterbox	Dynamic	RT/RT+/PI/PTY/PS/MS/CT
Audio modulation	Mono sound (4.5, 5.5, 6, 6.5 MHz) NICAM stereo 5.85 MHz Analog stereo (5.742, 6.742 MHz)		
Audio level adjustment range	-18 dB...+20 dB		
RF output		**RF output**	
RF output frequency range	45...862 MHz	RF output frequency range	87.5...108 MHz
RF output level range	95...111 dBuV	RF output level range	98.5...114 dBuV

GENERAL			
IP streaming input		**Common features of Palomino II**	
RJ-45 Standards	100Base-TX, 1000Base-T ,2 pcs	Number of power supplies	1 or 2
Frame formats	UDP/IP or RTP/IP	Power consumption	40 W
Protocols	ARP, IGMPv3,ICMP,IPv4	Supply voltage	100... 240 Vac 36 ... 60 Vdc
FEC	MPEG pro code of practice V2r3	Connectors	RJ-45, F female
Stream type	SPTS, MPTS, CBR, VBR (SPTS only)	Dimensions	44 x 483 x 560 mm 19" 1 RU) h x w x d
Input stream bit rate	1...62.5 Mbit/s	Weight	5.5 kg
Management port		Enclosure classification	IP 21
RJ-45 Standards	100Base-TX, 1000Base-T, 2 pcs	Operating temperature range	-10... +45 ºC
Protocols	ARP, ICMP, IPv4, TCP, SNMP v2c, HTTP 1.1	Storage temperature range	-20... +70 ºC
TS processing		Specifation is met	+5 ... +45 ºC
Standards	ITU-T H.222 ISO/IEC 13818-1, ETSI EN 300 468, ETSI TS 101 154	EMC	EN50083-2
		Safety	EN60950-1
		Environment	ETSI EN 300019-1-3 Class 3.1

TELESTE CORPORATION
www.teleste.com

P4P_Palomino II_0517