

WISI GNHWA

Chameleon Processor (ATSC and QAM J.83 Annex B Receiver)



Description

The Chameleon is a Software-Based Headend Platform. The Chameleon headend platform is designed with all current and future applications in mind. It is ideally suited for the transition from analog to digital environments, and has unique flexibility that allows you to change functionality with the click of a button. The CHAMELEON product line covers functionality needs for all types of installations. These can be easily extended, in size by adding more units, and in functionality by adding software options. The software functionality can be modified and upgraded at any time, without changing the hardware. This Chameleon version (GNHWA) is equipped with multi-tuner support for ATSC and QAM J.83 Annex B reception.

Scope of delivery

- 1x Chameleon Processor GNHWA module
- 1x Quick Guide

At a glance:

- Headend processor for residential, regional and national networks
- Customizable functionality via software
- Regeneration of Service Information
- ASI input and output
- SDI input and output
- Audio/video decoding
- Common Interface for Descrambling
- Multi-standard DTV tuner
- Multi-standard Digital and Analog TV modulator
- IPTV input and output

Technical data	
RF-Inputs ATSC 8 VSB	
Number of tuner	2 pcs.
Modulation type	ATSC 8-VSB
Frequency range	47...1002 MHz
Level range	45...90 dB μ V (-64...-19 dBm)
COFDM-Spectrum DVB-T	2 k and 8 k FFT
Guard Interval	1/32, 1/16, 1/8, 1/4
FEC inner code ATSC	Conv., K=7, G=1/2, 2/3, 3/4, 4/5, 5/6, 7/8
Return loss	>16 dB @ 47 MHz, -1,5 dB/Oktave, > 12 dB
Bandwidth	6/7/8 MHz
RF-Inputs QAM J.83 Annex B	
Number of tuner	2 pcs.
Modulation type	QAM Modulations
Frequency range	47...862 MHz
Level range	45...90 dB μ V (-64...-19 dBm)
Symbol rate	5.057 and 5.361 Mbaud 1-5.3097 Mbaud
QAM mode	64-, 256-QAM
Return loss	>18 dB @ 47 MHz, >12 dB @ 862 MHz
Bandwidth	6 MHz
Compliance	ITU-T J.83 Annex B/C
ASI-In-/Output	
ASI-Inputs	max. 2 pcs.
ASI-Outputs	max. 2 pcs.
ASI-Impedance	75 Ω
ASI-Frequency range	<270 MHz
ASI-Return loss	>17 dB (27...270 MHz)
ASI-Compliance	EN 50083-9:2002
ASI-Packet size Input/Output	188, 204/188 Byte
ASI-PCR restamping	Yes
ASI-Input/Output max. payload bit rate	Typ. 200 Mbit/s
Streaming-In-/Output	
IP-Inputs	32, 64, 128 pcs. (depends of operation mode)
IP-Outputs	32, 128 pcs. (depends of operation mode)
IP-Compliance	ISO/IEC 13818
IP-Input bitrate	Max. 425 Mbit/s per IPTS, Max. 850 Mbit/s total
IP-Output bitrate	Max. 425 Mbit/s per IPTS, Max. 850 Mbit/s total
IP-Input protocol	UDP/RTP/RTP+FEC Unicast and Multicast, IGMP v2 and v3
IP-Output protocol	UDP/RTP/RTP+FEC Unicast and Multicast, IGMP v2 and v3
IP-TS-Input format	SPTS CBR/VBR, MPTS CBR
IP-TS-Output format	SPTS CBR/VBR, MPTS CBR
IP-FEC Inputs	32 or 64 or 128 pcs. (with GNSTREC software option, number depends on operation mode)
IP-FEC Outputs	32 pcs. (with GNSTREC, Streaming mode)

IP-FEC compliance	SMPTE 2022-1, SMPTE 2022-2
IP-Packet format	MPEG over UDP/IP and RTP/IP
IP-Packet size	188 Byte
IP-PCR restamping	Yes
IP-Dejittering	Yes, per default 100ms, individual adjustable
HD-SDI Output	
Number of outputs	1 pcs.
Video formats	1920x1080i@50/60, 1280x720p@50/60
Stereo mode	Stereo, Dual mono, Dual left/right
OSD Test pattern	Yes
Audio sampling frequency	32/44,1/48 kHz
Compliance SDI-HD	SMPTE 292M, SMPTE 299M, SMPTE 291
Connector	BNC connector 2
SD-SDI Output	
Number of outputs	2 pcs.
Video formats	720x576i@50, 720x480i@59.94
Connector	BNC connector 1 and/or 2
MPEG Decoder - Video/Audio	
Video decoder	MPEG-2 SD (MP@ML) 1,5..15 Mbit/s, MPEG-4 SD (MP@ML) Level 4.1, MPEG-4 HD (MP@HL) Level 4.1
Audio decoder	ISO 13818-3 MPEG-1 (L1/L2) MPEG-2 (L1/L2), Dolby AC-3 (Dolby and the double-D symbol are trademarks of Dolby Laboratories. Manufactured under license from Dolby Laboratories)
Video downscaling	HD to SD for 1 Service
Video-Scaling	Auto, Ignore, Letterbox, Pan and scan, Combined, Forced
Subtitle	DVB and Teletext (EBU) EN 300 743, SCTE 27
Audio format	Mono/Stereo/Dual NICAM mono/ BTSC/SAP/A2 Stereo/A2 Dual mono, AC-3
Compliance	ISO 13818-2 (MPEG-2/H.262); ISO 14496-10 (MPEG-4/H.264/ AVC)
PAL-625/SECAM/ Modulation (Analog TV)	
Number of output channel	2 pcs.
Video standard	PAL/SECAM
TV systems	PAL B/G, B/H, D/K, I, Nc, SECAM B/G, D/K
Audio system	A2 Stereo, NICAM, Mono, A2 Dual mono, NICAM Dual mono, AC-3
OSD Test pattern	Yes
WSS fade in	Yes, Auto, Off, Forced 4:3/14:9/16:9
Stereo mode	Stereo, Dual mono, Dual left/right
VPS Signaling	Yes, from Teletext or EIT
Channel bandwidth	4.2/5/6 MHz
Video carrier modulation depth	adjustable 80...90%, 1% steps

Technical data	
Video group delay pre-correction	Yes, B/G general, D/K GOST 20532-75, M FCC
Test lines	Yes
Audio gain	adjustable 12...-12 dB, 1 dB steps
Audio subcarrier level	Auto, -10...30 dBc, 1 dB steps
Output frequency	45...862 MHz
Frequency table	OIRT, EIA, CCIR, OI
S/N Video, weighted (CCIRrec. 567-1)	typ. 64 dB
C/N, broadband	>70 dB (65 dB typical at adjacent channel)
Spurious suppression	>60 dBc

PAL-M/NTSC Modulation (Analog TV)	
Number of output channel	1 pcs.
Video Standard	PAL/NTSC
TV systems	PAL B/G, B/H, D/K, I, Nc, SECAM B/G, D/K, NTSC M
Audio system	Mono, MTS + SAP (BTSC)
OSD Test pattern	Yes
Closed captioning	Yes
Stereo mode	Dual mono, Dual left/right
Channel bandwidth	4.2/5/6 MHz
Video carrier modulation depth	adjustable 80...90%, 1% steps
Video group delay pre-correction	Yes, B/G general, D/K GOST 20532-75, M FCC

Test lines	Yes
Audio gain	adjustable 12...-12 dB, 1 dB steps
Audio subcarrier level	Auto, -10...30 dBc, 1 dB steps
Output level	84...111 dBμV (1 ch)
Frequency table	OIRT, EIA, CCIR, OI
S/N Video, weighted (CCIRrec. 567-1)	typ. 64 dB
C/N, broadband	>70 dB (65 dB typical at adjacent channel)
Spurious suppression	>60 dBc

FM Modulation (Analog Radio)	
Number of output channel	8 pcs.
Audio decoder	ISO 13818-3 MPEG-1 (L1/L2); MPEG-2 (L1/L2)
Audio format	Mono, Stereo, Joint Stereo
Modulation type	FM (Reference ITU-R BS.450-3)
FM-modulation depth limit	Yes
RDS insertion	Yes, UECP SPB490 (dynamic and static)
Output frequency	87,5...108 MHz (100 kHz step size)
Audio-S/N	mono >60 dB, stereo >55 dB
C/N, broadband	typ. 65 dB
Spurious suppression	typ. 60 dB typ. 60 dBc (FM band 87.5...108 MHz); >50 dBc (outside FM band)

DVB-C Modulation (Digital TV/Radio)	
Number of output channel	4 pcs.

Constellations	16-, 32-, 64-, 128-, 256-QAM
Spectrum	normal or inverted
Symbol rate	2.4...13.6 Mbaud
MER (at RF out)	> 43 dB @ 256-QAM
Output frequency	45...862 MHz
Frequency table	OIRT, EIA, CCIR
Output level	78...105 dBμV (1 ch), 75...102 dBμV (2 ch), 72...99 dBμV (3 ch), 69...96 dBμV (4 ch)
Spurious suppression	>60 dBc
Compliance	DVB-C (EN 300 429), ITU-T J.83 Annex A

J.83 Annex B Modulation (Digital TV/Radio)	
Number of output channel	4 pcs.
Constellations	64-, 256-QAM
Spectrum	normal or inverted
Symbol rate	5.057 and 5.361 Mbaud
Interleaving mode	I=8 J=16, I=16 J=8, I=32 J=4, I=64 J=2, I=128 J=1/2/3/4/5/6/7/8
MER (at RF out)	> 43 dB @ 256-QAM
Metadata support	DVB-PSI/SI
Output frequency	45...862 MHz
Frequency table	OIRT, EIA, CCIR
Output level	78...105 dBμV (1 ch), 75...102 dBμV (2 ch), 72...99 dBμV (3 ch), 69...96 dBμV (4 ch)
Spurious suppression	>60 dB
Compliance	ITU J.38 Annex B

J.83 Annex C Modulation (Digital TV/Radio)	
Number of output channel	4 pcs.
Constellations	64-, 256-QAM
Spectrum	normal or inverted
Symbol rate	2.4...13.6 Mbaud
MER (at RF out)	> 43 dB @ 256-QAM
Metadata support	DVB-PSI/SI
Output frequency	45...862 MHz
Output level	78...105 dBμV (1 ch), 75...102 dBμV (2 ch), 72...99 dBμV (3 ch), 69...96 dBμV (4 ch)
Spurious suppression	>60 dBc
Compliance	ITU J.38 Annex C

DVB-T Modulation (Digital TV/Radio)	
Number of output channel	2 pcs.
COFDM mode	2k, 8k
Guard Interval	1/4, 1/8, 1/16, 1/32
FEC	1/2, 2/3, 3/4, 5/6, 7/8
MER	>38 dB
Constellations	QPSK, 16-, 64-QAM
Max output bit rate	31,7 Mbit/s (64-QAM, FEC 7/8, GI 1/32)
Frequency table	OIRT, CCIR
Bandwidth	5/6/7/8 MHz

Technical data

Output level	75...102 dB μ V (1 ch), 72...99 dB μ V (2 ch)
Spurious suppression	>60 dBc
Compliance	DVB-T (EN 300 744)

DTMB Modulation (Digital TV/Radio)

Number of output channel	1 pcs.
Constellations	4-, 16-, 64-QAM
Header length	420/595/945 symbols
Interleaving length	M = 240, M = 720
Code rate	0.6, 0.8
Frequency table	OIRT, CCIR
Output level	81...100 dB μ V
Spurious suppression	>60 dBc
Compliance	GB 20600-2006

ISDB-T Modulation (Digital TV/Radio)

Number of output channel	1 pcs.
Output spectrum (mode)	Mode 1 (2k), Mode 2 (4k), Mode 3 (8k)
Guard Interval	1/4, 1/8, 1/16, 1/32
Spectrum	normal or inverted
Output S/N	>45 dB
Output MER	>41 dB (typ. 43 dB)
Frequency table	OIRT, EIA, CCIR, ABNT
Output level	75...102 dB μ V
Spurious suppression	>60 dBc
Bandwidth	6 MHz
Constellation (layer A)	DQPSK, QPSK, 16-, 64-QAM
Code rate (layer A)	1/2, 2/3, 3/4, 5/6, 7/8
Time interleaving length (layer A)	0, 4, 8, 16
Number of segments	13 (layer A)
Compliance	ARIB STD-B31, Layer A

CI and decryption

Bit rate	55/62/70/82/98 Mbps
Multiplexing before scrambling	Yes
Watch dog decryption	Yes
Multichannel decryption	Yes
Service and PID level decryption	Yes
Compliance HDMI	EN 50221
CA PMT mode	Yes, normal or first PMT or with the lowest program number

Processing

Service remultiplexing	Yes, with GNSYMUX software option
PID filtering and remapping	Yes
PCR correction and de-jitter	Yes
Advanced PSI/SI regeneration	Yes
Encryption	Yes, DVB-CSA, AES, Samsung LYNK, Pro:Idiom
Encryption throughput	Max. 50/150/300/600 Mbps total (depends on operation mode)
Decryption	Yes, with CAM and Smart Card
Decryption throughput	Depending of the CAM, max. 850 Mbps total
Processing bitrate	Max. 1200 Mbps total

Number of PIDs

Max. 2000/4000 PIDs total
(depends on operation mode)

Compliance	ETSI EN 300 468
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Connectors

RJ45	2 pcs. (Streaming in/out, Management)
F connector RF input	2 pcs.
F-socket RF- output	1 pcs.
BNC-socket	2 pcs. (ASI in/out, SDI out)
Common Interface for Descram- bling	2 pcs.
SGMII socket	1 pcs. (Streaming and management interface for GN50)

General data

Power consumption	typ. 16 W
Operating temperature range	-5°C...+45°C, 23°F...113°F, (ETSI EN 300 019-1-3 Class 3.1)
Max. humidity (non-condensing)	95 %
EMC	EN 50083-2, FCC CFR 47 Part 15 (Class A)
Safety compliance	CE, UL/CSA/CAN 60950-1
Signalling	Multicolor LEDs (Power on - green, Error - red)
Operation Mode	DTMB, DVB-C, DVB-T, FM, HD-SDI, ISDB-T, J.83 Annex B, J.83 Annex C, PAL-625/SECAM, PAL-M/NTSC, Pro:Idiom, SDI to PAL-625/NTSC, Streaming
Hardware revision	2001
Software version	3.1.1
Tuner	070
Possible Software options	GNTRANS, GNIRD, GNGATE, GNDEDGE, GNVEDGE, GNALL, GNDCMOD, GNQCMOD, GNDTMOD, GNDMOD, GND- VMOD, GNDISMOD, GNOCF- FM, GNASI, GNDASI, GNSSDI, GNDSDI, GNHSDI, GNSSDMOD, GNDSMOD, GNDOL, GNBTS, GNFMADV, GNSTR, GNSTRX, GNSTREC, GNSYMUX, GNPSISI, GNT2MIDE, GNDT2MIDE, GNDT- 2MIPLP, GNQT2MIPLP, GNOT2MI- PLP, GNXT2MIPLP, GNDICI, GN- BISS, GNSCR, GNSCRX, GNAES, GNLYNK, GNOPISCR, GNRED, GNNRED, GNSYSMG

Packaging data

Sales unit	1 pcs.
Dimensions (WxHxD) sales unit	260x130x40 mm
Packaging volume sales unit	1,4 dm ³
Gross weight sales unit	0,72 kg
Shipping unit	1 pcs.
Dimensions (WxHxD) shipping unit	310x160x50 mm
Packaging volume shipping package	2,5 dm ³
Gross weight shipping unit	0,86 kg
EAN	4010056733575
Article number	73357