Digital Video Interfacing Products

AT278USB, iMod

DVB-T/H/C & ATSC Modulator IF and RF (VHF & UHF) Output DVB-ASI Input

Standard Features

DVB-T/H/C Modulator with VHF & UHF Up converter. - High Speed USB 2.0.

- Windows XP, Vista, Win 7 (64bit) Drivers + SDK.
- Linux Drivers & sample application.
- Accompanied by DVSStaion3, Alitronika's Integrated TS Player, Recorder & Real Time Quick Analyser Software.
- Supports DVB According to Standard A1010 Rev1 & EN50083.
- Modulation of Transport Stream files from Harddisk.
- Modulation of TS from the ASI input.
- All modulation processes are done by hardware so that there is no

CPU load and there is no need for an expensive high performance PC. -TPS flags to indicate TS contains MPE-FEC and/or Time slicing.

- Bitrates from 4.98 MB/s to 31.67 MB/s. for DVB-T/H and from 14
- MB/s to 65 MB/s. for DVB-C.
- Supports Burst or continuous modes, 188 and 204 packet sizes. **Inputs:**

DVB-ASI input.

Outputs:

RF and IF Output.

IF & RF Specifications

- FEC Code Rates: 1/2, 2/3, 3/4,5/6, 7/8.
- Spectral Inversion: Both inverted and non-inverted.

DVB-T/H Spec.

- Channel Bandwidth: 5MHz, 6MHz, 7MHz, 8MHz.
- COFDM Spectrum: 2k,4k and 8k carriers non-hierarchical.
- Standards: COFDM according EN 300 744.
- Modulation Modes: QPSK, 16QAM and 64QAM.
- Guard Interval Modes: 1/32, 1/16, 1/8 and 1/4.

DVB-C Spec.

- Channel Bandwidth: 6MHz, 8MHz.
- Standards: QAM according EN 300 744.
- Modulation Modes: 16QAM,32QAM,64QAM,128QAM,256QAM.

ATSC 8-VSB Spec.

- Channel Bandwidth: 6MHz.
- Standards: A/53 8-VSB.

Specifications

- On Board Buffer: 16Mbytes
- IF & RF Connector: 75 Ohms BNC.
- **IF Output Frequency:** 35/37 or 69/71MHz adjustable in 1Hz steps
- IF Output level: 0dBm @ 75Ohms.
- RF O/P Frequency: 50MHz to 1000MHz.
- RF Output power: -15dBm to -45dBm
- DVB-ASI Connector: 75 Ohms BNC.
- DVB-ASI Input return loss: 15dB.
- Power Consumption: 5 Watts
- Size WxLxH: 140mmx120mmx30mm

Application

Targeted for Digital Video Professionals, Sophisticated End Users and OEMs, the AT278USB is an ideal solution for a number of applications such as:

- Development Tools for DVB-T/H or DVB-C QAM A/B/C Receiver R&D.

- IP to DVB Gateway.
- DVB-Transport Stream Generation.
- Stand alone DVB-T/H/C signal
- generator for Test & Validation.
- Demonstration and Trade Shows.
- DVB-T/H/C output for OEM product.

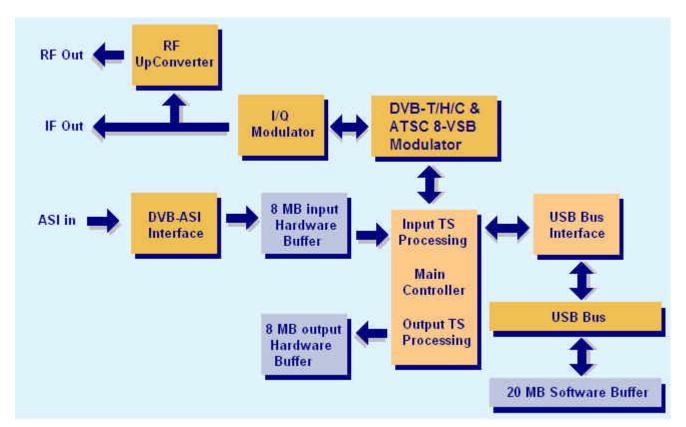
1 GENERAL DESCRIPTION

A member of Alitronika's state of art digital video interfacing products.

The AT278USB is a PCI based interface device suitable for DVB-T/H/C Transport Stream Generation and IF as well as full range VHF & UHF IF up conversion.

2 BLOCK DIAGRAM

The figure below illustrates the block diagram of the AT278USB device. The device communicates with the PC via the USB interface device. The AT278USB is capable of modulating a DVB-T/H/C TS from the harddisk of the PC or from the incoming DVB-ASI input. The modulated DVB-T/H/C is available on both IF and RF. The modulation options, output frequencies and all other setting are done with the help of DVSStation3.



3 EXTERNAL INTERFACES

The external interfaces for the AT278USB are shown. There are 3 BNC connectors for the RF& IF outputs and DVB-ASI input. The LED on the unit function as follows:

OFF = Power is off/ device not activated **Flashing** (Red) = Modulation not activated – Error condition

ON (Green) = Normal operational condition



4 APPLICATION

Targeted for digital video professionals, sophisticated end users and OEMs the AT278USB is an ideal solution for a number of applications such as, development tools, universal interface for MPEG-II Transport Stream Playing and Recording, video on demand server, transport stream test generator, high speed serial data link, software based MPEGII decoders & encoders and many other applications

5 Software Application, DVSStation3

5.1 – DVSStation3: All of Alitronika devices are supported by DVSStation3, Alitronika's FREE Transport Stream Player, Recorder, Analyser & converter application software. Please refer to DVSStation3 specification and User Manual on our website for more information about DVSStation3. Even better please download it from our website & try it out. It works in DEMO mode without any Alitronika devices.

Alitronika - DVSstation III evice select Configuration Settings	Working Register Help	SMALL COMPANY, BIG IDEAS			
Play Record	alitr	onika <mark>DVS</mark>			
Ter_578.ts	Dpen 🕞				
File Information Ter_578.ts 112,197,631 bytes Playtime: +/- 60.01sec Before first packet: 187 After last packet: 101 596795 packets Packet size: 188 Bit rate: 14,323,411 bps	Program Information ⊕ T [™] Program Information ⊕ T [™] Canvas/Ketnet ⊕ T [™] één ⊕ T [™] Nederland3 ⊕ T [™] Nederland2 ⊕ T [™] Nederland1	PID Information PId list # 0 PAT (15.03 Kb/s) # 16 NIT (547.66 b/s) # 17 SDT (207 Kb/s) # 18 EIT (74.24 Kb/s) # 21 MIP (2.49 Kb/s)	Output Select DVB SMPTE Raw Data Hw TP Gen Serial IF and RF	Bitrate Eile: 14929411 RF: 26126470 Default	Adaptions PCR + DTS/PTS TOT/TDT Continuity
		# 8191 Stuffing (585.99 # 1010 PMT (15.03 Kb/ # 1011 PCR (3.10 Mb/s # 1012 Program (172.35 ♥ ♥	Packet size	Options	Tools Error intertion Sub Range
Play controls	No errors detected Ts Time:	Goodies	Buffer size		
	op count 0 Elapsed Time:	Hext dit	Lowleyel SMb Hardware BMb Software 10Mb		

Play Screen

Record Screen

Play Re	cord			
	🕞 Open			
rogram Information	Pid Information Pid list ⊕ 0 PAT (15.44 Kb/s) ⊕ 1 CAT (15.44 Kb/s)	Input Select O DVB Serial SMPTE Parallel LVDS Paw Data	Recording Size Seconds MBytes 100	Hardware PID filter Enable PID Filtering Exclusive PID Table
 	 B 16 NIT (389.20 b/s) T 5 DT (1.82 Kb/s) B 18 EIT (75.63 Kb/s) 20 (0.00 b/s) 21 MIP (2.46 Kb/s) B 191 Stuffing (597.681 D 100 PM (15.44 Kb/s) D 101 PCR (15.44 Kb/s) 	Bit rate [Mb/s] 14.929	Options Loop through Pess Through ASI	Bitrate RF: 26126472
		Kb. You Data Errors 0 Sync Loss 0	Time Stamping	
ecord controls	No errors detected T	s Bytes: 0 MB Goodies HexEdit	Buffer Size	

Modulation Settings DVB-C

Play Record Ter_578.ts ile Information Progr □ Ter_578.ts 112,197,631 bytes □ Playtime: +/-60.01 sec Before first packet: 187 □ After last packet: 101 596735 packets □ Packet size: 188 Bit rate: 14,929,411 bps	Modulation Settings BF and IF set DVB Standards DVB J83 annexA DVB J83 annexA DVB J83 annexC OVB J83 annexC OVB C Free mode Core Status In Sync 204 Pck Size TS Dverflow	ettings Settings QAM 16 Qam Mode 112/J17 Qam Mode 112/J17 Interleaver 15% Filter Roll-off 5 Symbol Rate (MSymb/s) Normal Spectral Inversion Enable Annex & mode Apply	Bitrate Eile: 14929411 BF: 45053648 Default Options Size 4	Adaptions PCR + DTS/PTS T T0T/TDT Continuity Tools Error insertion Sub Range
---	---	--	---	---

Modulation Settings DVB-T/H

Play Record Ter_578 ts File Information Ter_578.ts T12,197,631 bytes Playtime: +/- 60.01 sec Before first packet: 187 After last packet: 101 596795 packets Packet size: 188 Bit rate: 14,929,411 bps Play controls Play controls It Cooperative Looperative 		0 Bitrate Adaptions Elie: 14929411 PCR + DTS/PTS TOT/TDT Tot/TDT 0 Default Continuity Default Tools Error insertion Stee 4 Sub Range
--	--	--

Modulation Settings ATSC

Alitronika - DVSstation III					_ _ X
Play Record Ter_578.ts File Information Ter_578.ts -112,197.631 bytes -Plavime: +/- 60.01 sec	Mo	Adulator Settings Modulation Settings RF and IF sett Core Status In Syric 204 Pck Size TS Overflow	Core Settings	Birale Eile: 14929411 RF: 19392592	Adaptions
- Flaguine 47 6001sed - Before first packet: 187 - After last packet: 101 - 596795 packets - Packet size: 188 - Bit rate: 14,929,411 bps		Modulator Underflow		Default Options Size 4	Tot/TDT Continuity Tools Error insertion Sub Range
			Ts Analyzer DVB over IP		

RF Settings

Alitronika - DVSstation III ceselect Configuration Semings Wor	king Register Help					
Play Record	10dulator Settings Modulation Settings RF and IF s	settings		×		
Ter_578.ts	O Use IF output		💿 Use RF output			
File Information	35 to 37MHz				Bitrate	Adaptions
Ter_578.ts 112,197,631 bytes	69 to 71MHz		Output Level [dBm]	-35 🤤	<u>File:</u> 14929411	PCR
 Playtime: +/- 60.01sec Before first packet: 187 	Frequency [MHz]	70	Frequency [MHz]	850	RF: 0	+ DTS/PTS
– After last packet: 101 – 596795 packets	RF Freq. Sweep Control		RF Output Level Fade Control			Continuity
– Packet size: 188	Start Freq. [MHz]:	50	Start Level [dBm]	-35	Default	
Bit rate: 14,929,411 bps	Stop Freq. [MHz]	1000	Stop Level [dBm]	2		
	Freq. Step [MHz]:	100	Level Step [dBm]	1	Options	Tools
	Duration [s]:	1	Duration [s]:	1	Size 4	Sub Range
Play controls	► II 🔳 🖸		► II 🔳 🖸		- Messer II	
			RF Status			
Apply			O Locked		r	
			3		1) (1)	
<u>77 9 9 6 6 6 7</u>			DVB OVER IP			



of the broadcasting industry. Therefore Alitronika DVS reserves the right to make changes in its product specifications at any time without notice. The reader is cautioned to verify that the specification documents are current before placing orders.

Information furnished in this document is believed to be accurate and reliable.

MALL COMPANY, BIG IDE

alitronika

However, Alitronika DVS assumes no responsibility for any errors that may appear in any of its documents. Furthermore, Alitronika DVS assumes no responsibility for the consequence of use of such information or for any infringement of patents or other rights of third parties that may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Alitronika DVS.

This document supersedes and replaces all information previously supplied.

Alitronika DVS makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Alitronika DVS assumes any liability arising out of the application or use of any product and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Conformity to standards, all operating parameters and compliance to regulations must be validated for each customer application by customer's technical experts.

Alitronika DVS products are not authorized for use as critical components in any systems such as life supporting systems.