

## Digital Video Interfacing Products

# AT2780USB

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



## 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 or SPI inputs.
- 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.
- DVB-SPI input.

### Outputs:

- RF and IF Output.
- DVB-ASI output for monitoring the modulated TS file.

## Application

*Targeted for Digital Video Professionals, Sophisticated End Users and OEMs, the AT2780USB 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.

## 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:** +2dBm to -35dBm
- **DVB-ASI I/O Connectors:** 75 Ohms BNC.
- **DVB-ASI Signal level:** 1.0Vp-p nominal.
- **DVB-ASI Output Clock:** 270 MHz.
- **DVB-ASI Input return loss:** 15dB.
- **DVB-ASI Output Bit Rate:** 0 to 214 Mbit/s.
- **DVB-SPI Connector:** 25-pin sub-D.
- **DVB-SPI Input Level:** LVDS.
- **Power Consumption:** 5 Watts
- **Size WxLxH:** 170mmx210mmx65mm

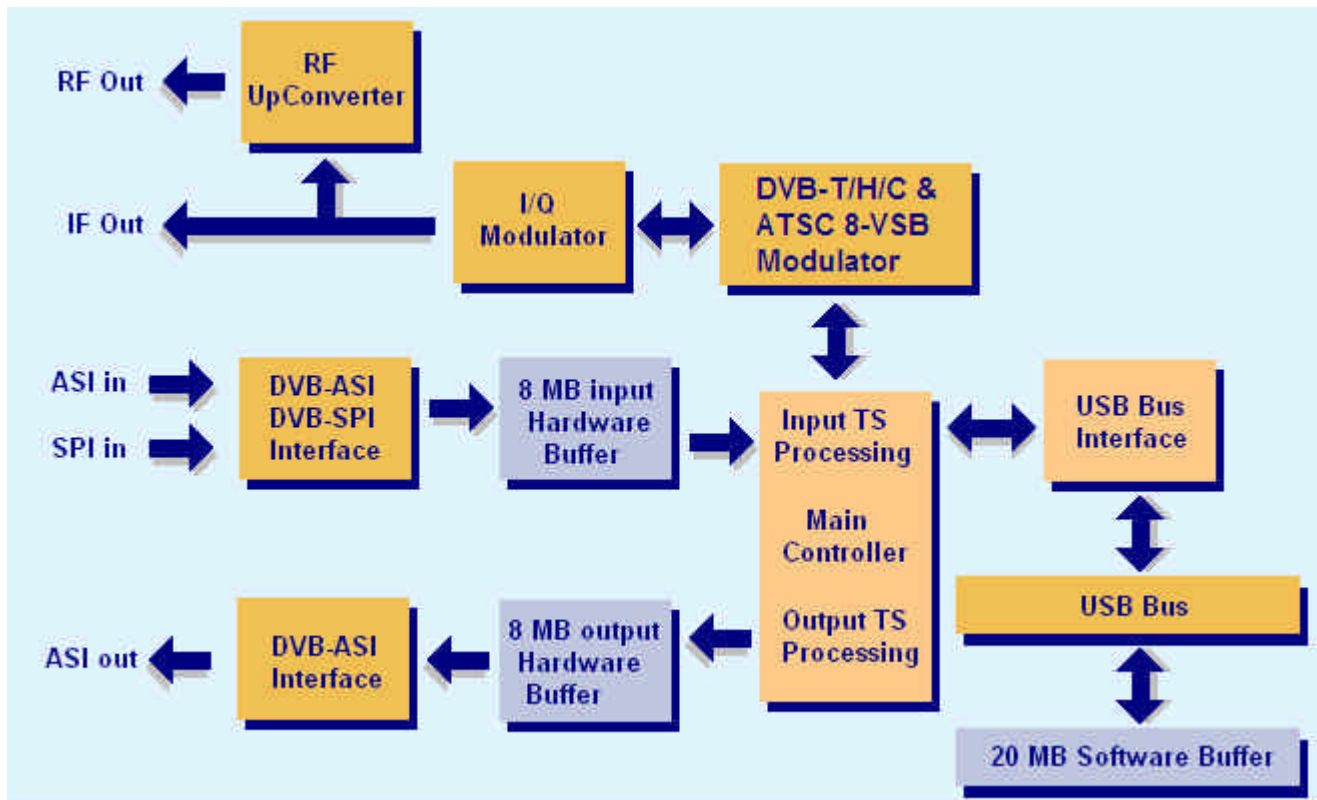
## 1 GENERAL DESCRIPTION

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

The AT2780USB 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 AT2780USB device. The device communicates with the PC via the USB interface device. The AT2780USB is capable of modulating a DVB-T/H/C TS from the harddisk of the PC or from the incoming DVB-ASI/SPI inputs. The modulated DVB-T/H/C is available on both IF and RF outputs as well as DVB-ASI output (for monitoring). The modulation options, output frequencies and all other setting are done with the help of DVStation3.



## 3 EXTERNAL INTERFACES

The external interfaces for the AT2780USB are shown. There are 4 BNC connectors for the RF, IF, DVB-ASI I/O and a 25-pin D-type connector for DVB-SPI input (LVDS).

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



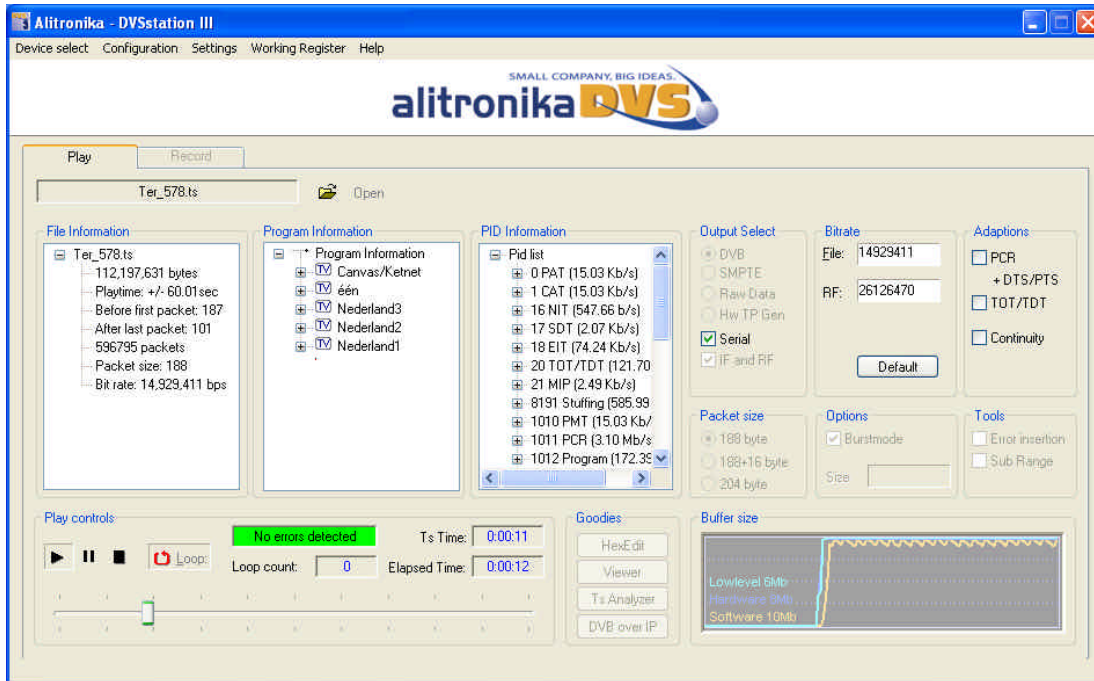
## 4 APPLICATION

Targeted for digital video professionals, sophisticated end users and OEMs the AT2780USB 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

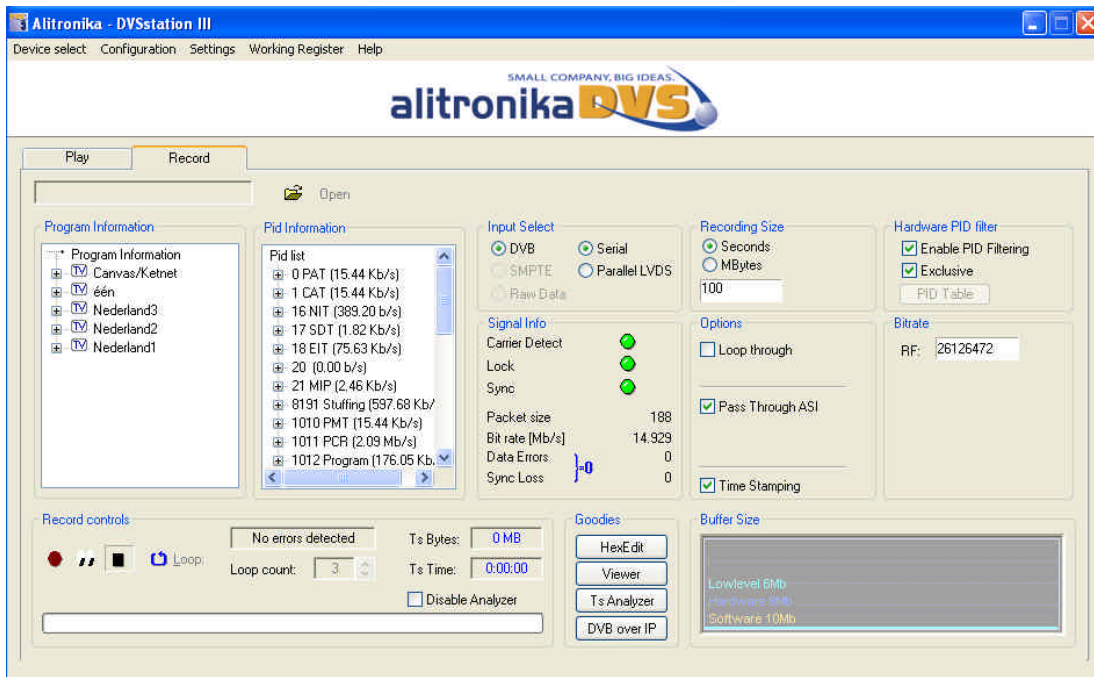
## 5 Software Application, DVStation3

**5.1 – DVStation3:** All of Alitronika devices are supported by DVStation3, Alitronika's **FREE** Transport Stream Player, Recorder, Analyser & converter application software. Please refer to DVStation3 specification and User Manual on our website for more information about DVStation3. Even better please download it from our website & try it out. It works in DEMO mode without any Alitronika devices.

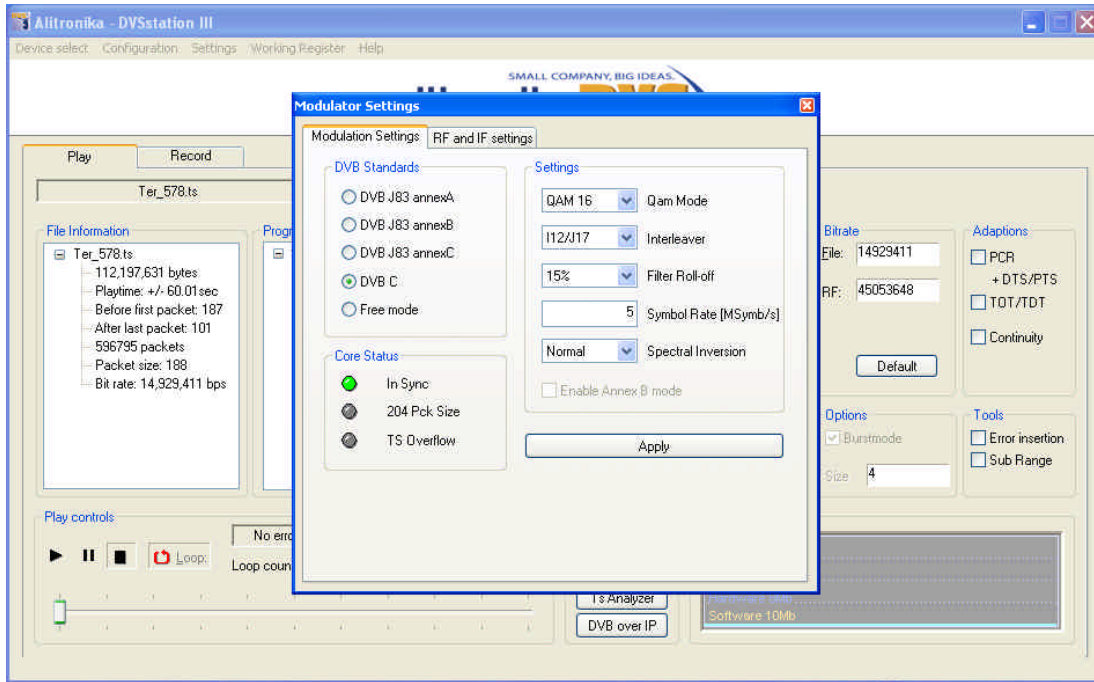
### Play Screen



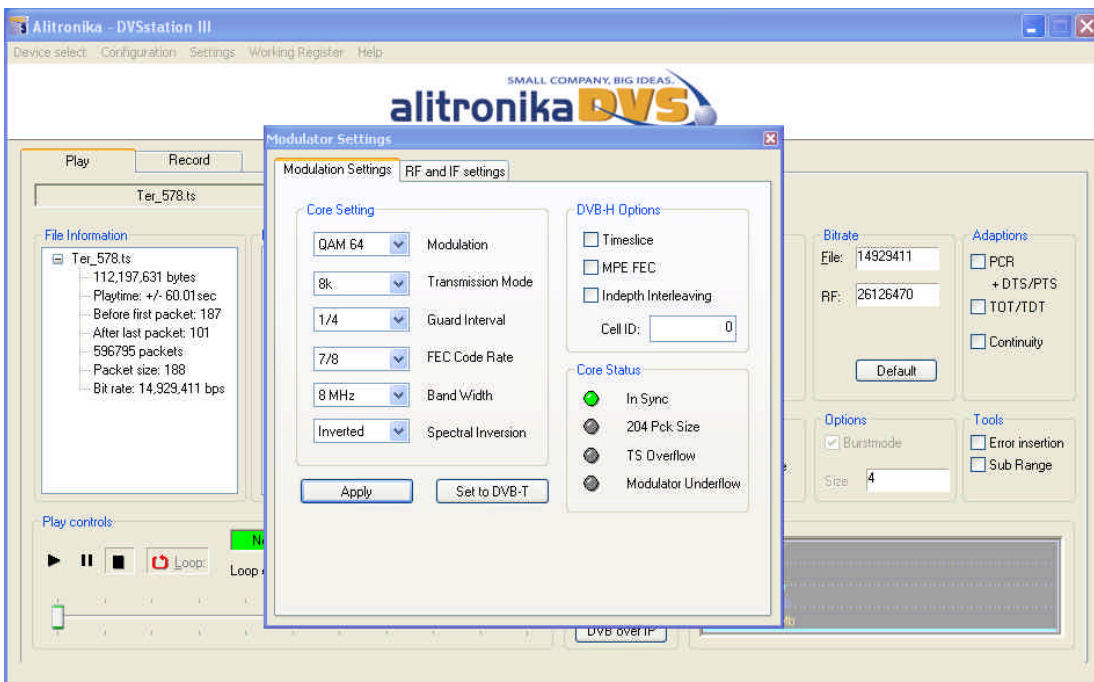
### Record Screen



## Modulation Settings DVB-C

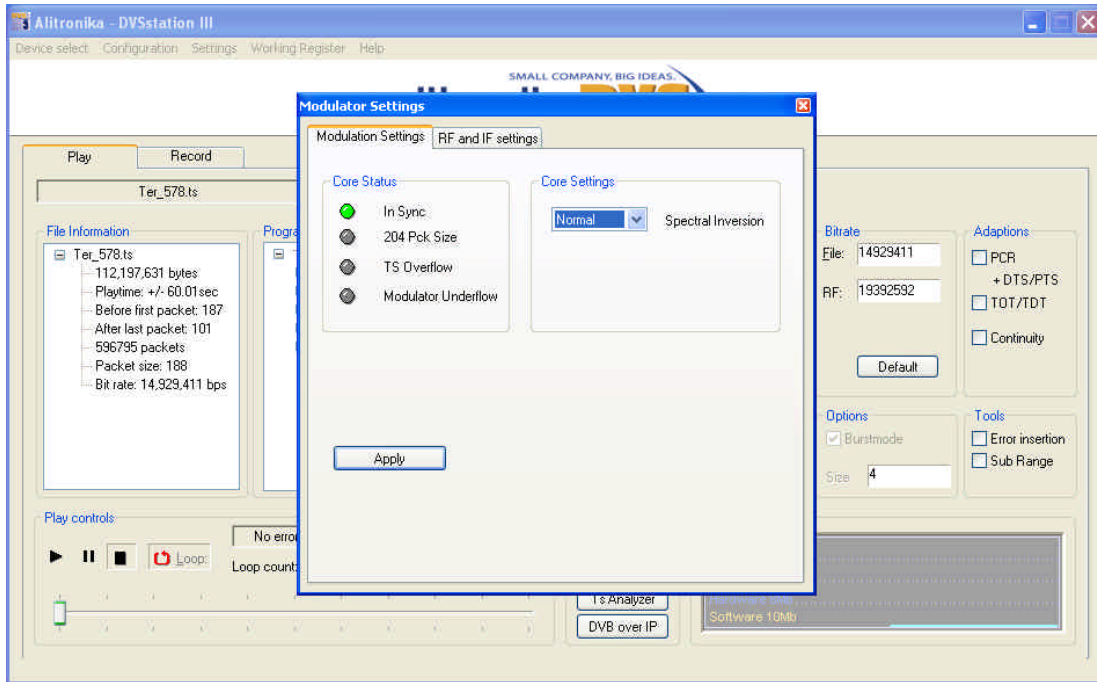


## Modulation Settings DVB-T/H

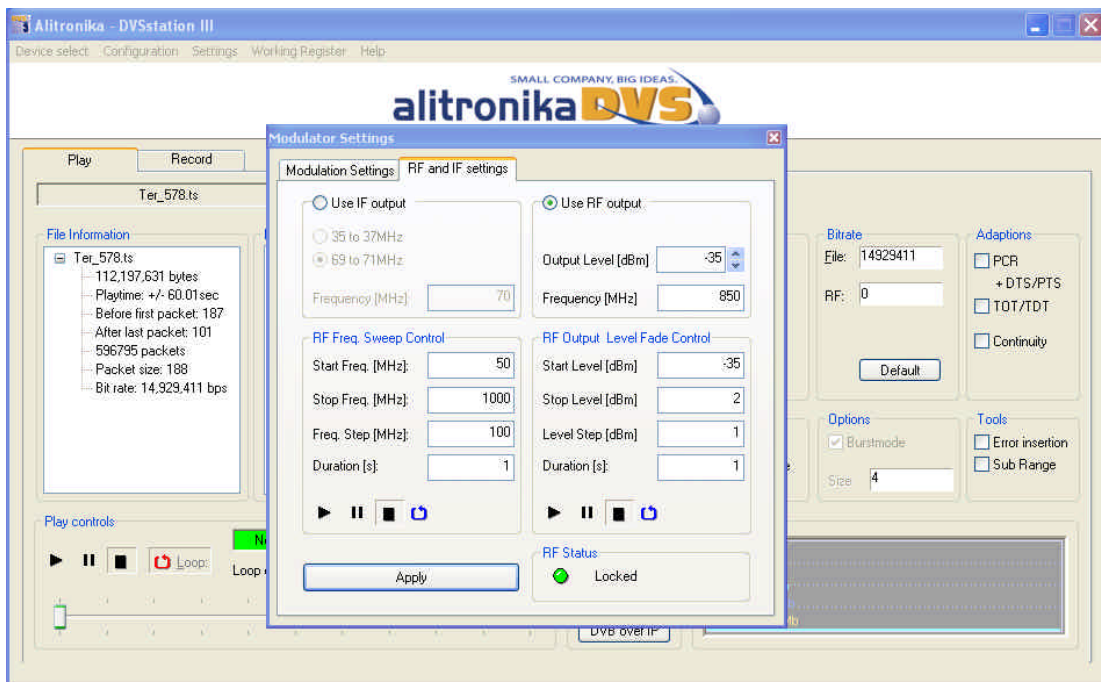




# Modulation Settings ATSC



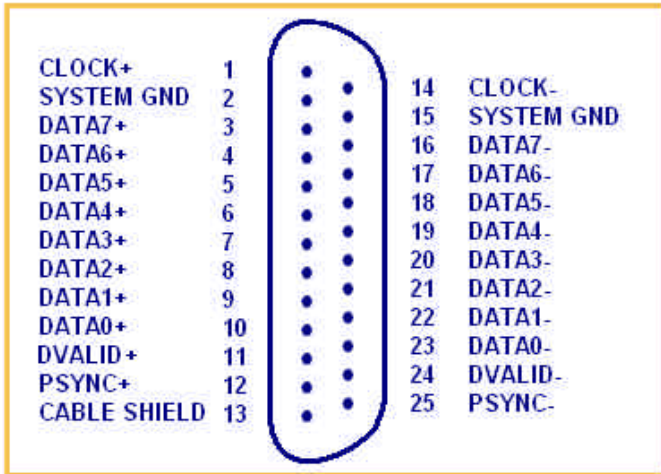
## RF Settings



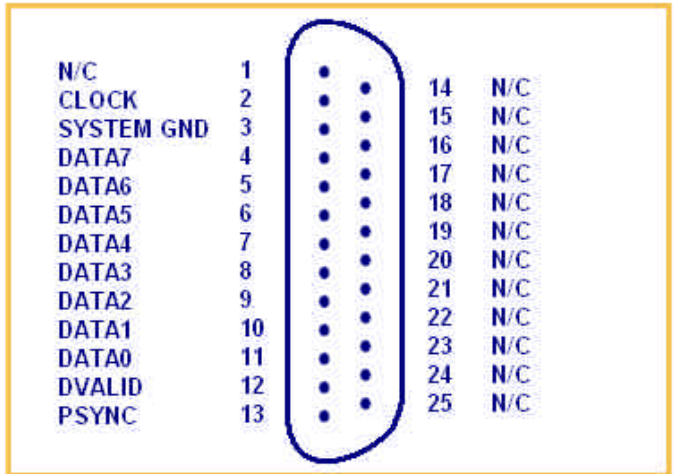
## SPI connector Pin outs

### Parallel ( DVB-SPI) Pinouts

For Alitronika's devices which support DVB-ASI input/output ( LVDS and/or LVTTTL/LVCMOS )



Standard DVB-SPI input/output Pinout



LVTTTL/LVCMOS output Pinout



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