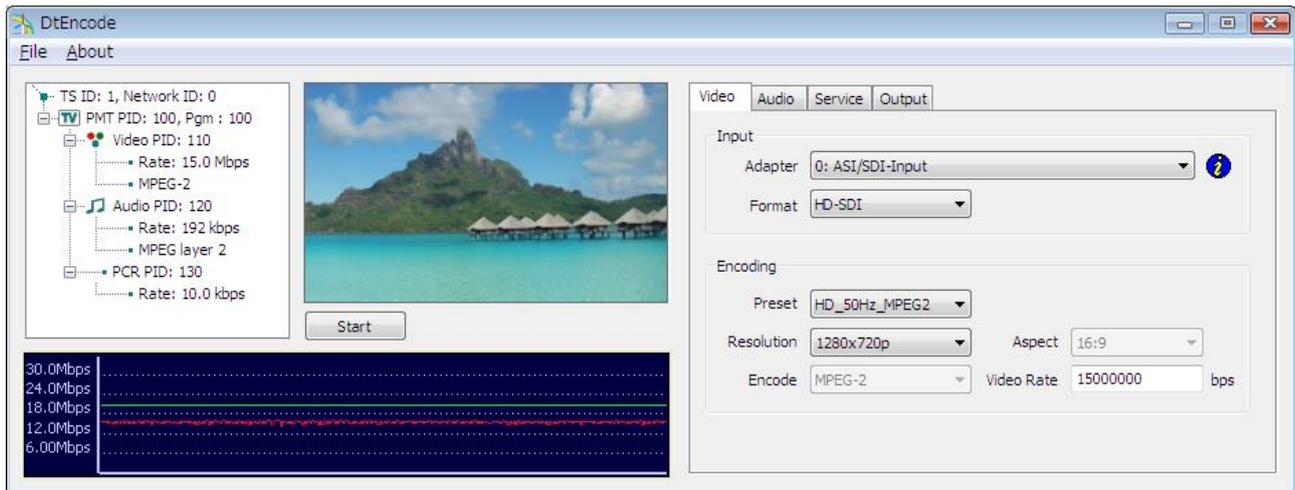


# DTC-315 - DtEncode



## Real-Time Video and Audio Encoding Software



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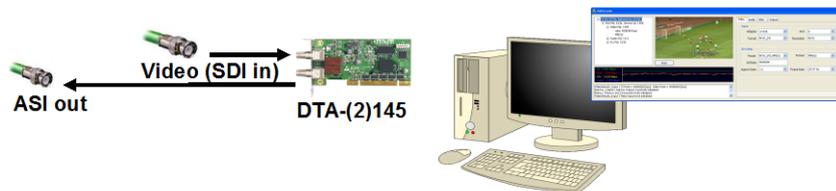
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## 1. Introduction

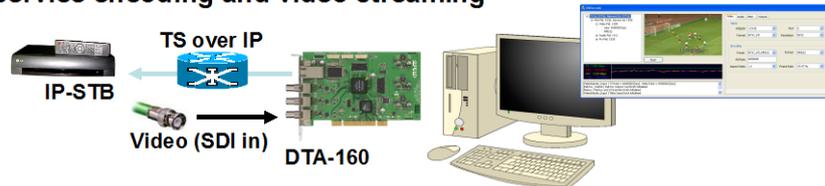
**DtEncode** is a cost-effective software package designed for real-time video and audio encoding. **DtEncode** is intended to be installed by the user on any qualifying PC and works in conjunction with DekTec input and output devices.

Some common practical applications that can be achieved using **DtEncode** are shown below:

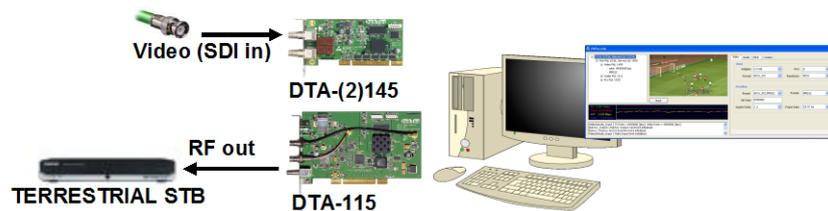
### Live video capture and streaming from any DekTec output adapter



### IP TV service encoding and video streaming



### Local RF broadcasting



The application is designed in a user-friendly way. The GUI displays information about the incoming video source, the encoded Transport Stream composition and its rate, and provides all necessary controls for the configuration of video, audio, service and output encoding. Chapter 5 gives an overview of the GUI and details how to configure your **DtEncode** for your specific needs.

The application has integrated functionalities for continuous generation of SD (Standard Definition), HD (High Definition) and Mobile TV streams. Users can set-up continuous encoding from any DekTec SDI input adapter as well as from third party video capture board through DirectShow. The encoded stream can be played out from any DekTec output adapter.

The user can save and record **DtEncode** settings in an XML file.

**DtEncode** enables simple configuration to create a service including Elementary-Stream PIDs, Program/Service ID and TS ID as well as a Network ID. **DtEncode** only generates an SPTS (Single Program Transport Stream). For advanced re-multiplexing and TS configuration, it is advised to combine **DtEncode** with DekTec DTC-700 MuxXpert.

**DtEncode** permits fine tuning of parameters for DekTec output adapters and provides an adapted GUI depending on the type of adapter and the targeted output network.

## 2. Specifications and Minimum Requirements

### 2.1. Minimum PC Requirements

|                  |   |
|------------------|---|
| <b>Platform</b>  | Windows XP, Vista, Server 2003, Windows7 32 bits  |
| <b>Processor</b> | <ul style="list-style-type: none"> <li>● Intel Core2 Duo 3.0GHz for 1xSD MPEG-2 encoding</li> <li>● Intel Core i7 930 2.67GHz (or higher) processor is required for 1xHD MPEG-2 or 1xSD H.264 encoding</li> <li>● Intel Core i7 2600 3.20GHz (or higher) processor is required for 1xHD H.264 or 4xSD H.264 encoding</li> </ul> <p>CAUTION: for specific configuration and requirements, please send a specific request to <a href="mailto:info@dektec.com">info@dektec.com</a></p> |
| <b>RAM</b>       | 512MB per SD (minimum),<br>2GB per HD (minimum)   |

### 2.2. Supported DekTec Adapters

DtEncode supports the following DekTec SDI input adapters:

| Type     | Adapter | Description   | Input(s)                            | Output(s)  |
|----------|---------|---|-------------------------------------|------------|
| DTA-124  | PCI     | Quad ASI/SDI Input Adapter for PCI Bus***               | 4x ASI/SDI***                       |            |
| DTA-145  | PCI     | Multi-Purpose ASI/SDI Adapter for PCI Bus               | 1x SDI/ASI*                         | 1x SDI/ASI |
| DTA-2144 | PCIe    | Quad ASI/SDI Adapter for PCI Express Bus                | 4x SDI/ASI**                        |            |
| DTA-2145 | PCIe    | Multi-Purpose ASI/SDI Adapter for PCI Express Bus       | 1x SDI/ASI*                         | 1x SDI/ASI |
| DTA-160  | PCI     | GigE TS-over-IP + 3 SDI/ASI** Ports for PCI Bus         | 1x Gig-E<br>3x SDI/ASI**            |            |
| DTA-2160 | PCIe    | GigE TS-over-IP + 3 SDI/ASI** Ports for PCI Express Bus | 1x Gig-E<br>3x SDI/ASI**            |            |
| DTA-2152 | PCIe    | Dual-Port HD-SDI Adapter with Genlock                   | 2x HD-SDI<br>1x Genlock input       |            |
| DTA-2154 | PCIe    | Quad-Port HD-SDI/ASI Adapter with Genlock               | 4x HD-SDI / ASI<br>1x Genlock input |            |
| DTU-351  | USB-3   | HD-SDI Input for USB-3                                  | 1x HD-SDI                           |            |

\* 2x Output, or 1x Input + 1x Output

\*\* bi-directional Input/Output ASI port

\*\*\* The DTA-124 can only support a maximum of three simultaneous SDI inputs

DtEncode supports the following DekTec output adapters:

| Model    | Adapter | Description   | Input(s)     | Output(s)   |
|----------|---------|---|--------------|-------------|
| DTA-102  | PCI     | DVB-SPI (LVDS) Output Adapter                                   |              | 1x DVB-SPI  |
| DTA-105  | PCI     | Dual DVB-ASI Output Adapter                                     | 1x DVB-ASI** | 1x DVB-ASI  |
| DTA-107  | PCI     | DVB-S/S2 Modulator with Upconverter                             |              | 1x DVB-S/S2 |
| DTA-110  | PCI     | QAM Modulator with UHF Upconverter                              |              | 1xQAM-A/B/C |
| DTA-110T | PCI     | DVB-T/H, QAM, ISDBT, ATSC, DTMB Modulator with UHF Upconverter  |              | 1x RF       |
| DTA-111  | PCIe    | DVB-T/T2, QAM, ISDBT, ATSC, DTMB Modulator with UHF Upconverter |              | 1x RF       |

| Model    | Adapter | Description  | Input(s)                            | Output(s)  |
|----------|---------|--|-------------------------------------|------------|
| DTA-112  | PCI     | DVB-T, ATSC, QAM Modulator with VHF/UHF Upconverter  | 1x DVB-ASI**                        | 1x RF      |
| DTA-115  | PCI     | DVB-T/T2, QAM, ISDBT, ATSC, DTMB Modulator with VHF/UHF Upconverter  | 1x DVB-ASI**                        | 1x RF      |
| DTA-122  | PCI     | DTA-122 DVB-SPI (LVDS) Input Adapter   |                                     |            |
| DTA-145  | PCI     | Multi-Purpose ASI/SDI Adapter  | 1x SDI/ASI*                         | 1x SDI/ASI |
| DTA-160  | PCI     | GigE TS-over-IP + 3 ASI Ports  | 1x Gig-E<br>3x DVB-ASI**            |            |
| DTA-2111 | PCIe    | Multi-Standard VHF/UHF Modulator   |                                     | 1x RF      |
| DTA-2160 | PCIe    | GigE TS-over-IP + 3 ASI Ports  | 1x Gig-E<br>3x DVB-ASI**            |            |
| DTA-2162 | PCIe    | Advanced Network Card with Dual GigE ports   | 2x Gig-E                            |            |
| DTA-2144 | PCIe    | Quad ASI/SDI Adapter   | 4x DVB-ASI**                        |            |
| DTA-2145 | PCIe    | Multi-Purpose ASI/SDI Adapter  | 1x SDI/ASI*                         | 1x SDI/ASI |
| DTA-2154 | PCIe    | Quad-Port HD-SDI/ASI Adapter with Genlock  | 4x HD-SDI / ASI<br>1x Genlock input |            |
| DTU-215  | USB     | DVB-T/T2, QAM, ISDBT, ATSC, DTMB Modulator with RF Output  |                                     | 1x RF      |
| DTU-245  | USB     | ASI/SDI Input+Output***  | 1x SDI/ASI                          | 1x SDI/ASI |
| DTU-205  | USB     | ASI/SDI Output   |                                     | 1x SDI/ASI |
| DTE-3100 | IP      | Networked DVB-ASI Output Adapter.<br><b>CAUTION:</b> Need to launch DiEncode.exe from command prompt with "DEncode.exe -dte" |                                     | 1x DVB-ASI |

\* 2x Output, or 1x Input + 1x Output

\*\* Bi-directional Input/Output ASI port

\*\*\* For DiEncode, the use USB adapters is only recommended for ASI outputs

## **3. DtEncode Software Installation**

### **3.1. Installation**

The DtEncode software installation is self-explanatory. The "DtEncode SetUp.exe" program will guide you through the installation process.

The latest version of 'DtEncode SetUp.exe' can be found in the download section of the DekTec website, at <http://www.dektec.com/downloads>.

DtEncode requires the Dta1xx device driver for PCI cards or Dtu2xxx device driver for USB adapters. The setup program includes an option to install the Dta1xx/Dux2xxx device driver. It is recommended to always install the included driver. The installation process will automatically check the version number of the driver, and leave the current driver on the system if it is newer than the driver in the install package.

### **3.2. Cautions and Recommendations**

- Virus-detecting software (e.g. Norton Internet Security, McAfee Internet security), Windows Update tasks or any wake-up or screen saver routines affect system performance which is concern for set-ups aimed at continuous 24H operations. As these may disturb the normal process of DtEncode, it is strongly recommended to disable any such software and process from your system.

## 4. DTC-325 DtEncode Revision History

| Revision   | Date       | Change  |
|------------|------------|---|
| V1.5.0.69  | 2015.10.15 | <ul style="list-style-type: none"> <li>Updated Osprey input to reflect changes introduced in new drivers</li> <li>Corrected settings for QVGA and 1seg encoding</li> <li>Corrected framerate setting for 1280x720p resolution</li> <li>Corrected MPEG2 progressive mode</li> </ul>  |
| V1.4.3.68  | 2014.09.30 | <ul style="list-style-type: none"> <li>HD-SDI 720p50 mode fix</li> </ul>  |
| V1.4.2.64  | 2014.03.31 | <ul style="list-style-type: none"> <li>AAC audio fix</li> </ul>   |
| V1.4.1.63  | 2014.03.12 | <ul style="list-style-type: none"> <li>Added support for DTA-2154 and DTU-351</li> </ul>  |
| V1.3.16.61 | 2013.12.12 | <ul style="list-style-type: none"> <li>Fixed stability of AAC audio</li> </ul>  |
| V1.3.12.57 | 2013.07.23 | <ul style="list-style-type: none"> <li>Fixed support for DTA-2111, DTA-2162</li> <li>Save IP forwarding parameters in configuration file</li> <li>Stability improvement for audio capture</li> <li>Minor corrections for AAC audio</li> </ul>   |
| V1.3.6.51  | 2013.01.08 | <ul style="list-style-type: none"> <li>Minor corrections on loading configuration</li> <li>Minor corrections on detecting available devices</li> </ul>  |
| V1.3.5.50  | 2012.11.26 | <ul style="list-style-type: none"> <li>Improve robustness of SDI capture against unstable source</li> </ul>   |
| V1.3.4.49  | 2012.10.29 | <ul style="list-style-type: none"> <li>Added image geometry settings for Screen Capture input</li> </ul>  |
| V1.3.3.48  | 2012.10.24 | <ul style="list-style-type: none"> <li>Improve robustness against SDI input jitter</li> </ul>   |
| V1.3.2.47  | 2012.10.15 | <ul style="list-style-type: none"> <li>Added support for DTA-2152</li> <li>Added the possibility to select between the default audio output and screen audio capture when using the Screen Capture input</li> </ul>   |
| V1.2.3.44  | 2012.3.16  | <ul style="list-style-type: none"> <li>Incorrect TTL setting problem correction</li> </ul>  |
| V1.2.2.43  | 2011.12.08 | <ul style="list-style-type: none"> <li>Set the windows sound mixer as default sound input in Screen Capture mode (<a href="#">check section 5.9.2 for configuring your audio input</a>)</li> </ul>  |
| V1.2.1.29  | 2011.6.08  | <ul style="list-style-type: none"> <li>Add setting for AAC version (MPEG-2 or MPEG-4)</li> <li>Multi display support for PC Capture input</li> <li>Add IP Forwarding from default PC Ethernet port</li> </ul>   |
| V1.2.0.28  | 2011.5.13  | <ul style="list-style-type: none"> <li>Support for DTA-111 and DTU-215</li> <li>Bug fix for SDI DekTec input</li> <li>Add check for tolerable RF levels and RF frequencies</li> <li>AAC Profile (LC, HEAACv1, HEAACv2) and Header (LATM, ADTS)</li> <li>No audio rendering when using PC capture input to prevent "Echo"</li> <li>IP output RTP/FEC settings bug correction</li> <li>Horizontal and vertical stripes for geometry adjustment</li> <li>Add input status LED for DekTec input adapters</li> </ul> |
| V1.1.1.10  | 2011.1.21  | <ul style="list-style-type: none"> <li>Updated XML config file format (see Appendix I, p.24)</li> <li>Prevent application freeze when pushing Stop button</li> </ul>  |
| V1.0.5.8   | 2010.6.18  | <ul style="list-style-type: none"> <li>Support for DTA-112, DTA-2160</li> <li>Support DTE-3100 (<a href="#">Need to be launched with "DtEncode -dte" command</a>)</li> <li>Screen capture support up to 30 frame per second</li> </ul>  |
| V1.0.4.7   | 2010.4.20  | <ul style="list-style-type: none"> <li>Performance and stability improvements for SD H.264</li> <li>Launch of application from Command Prompt (ex: "DtEncode.exe FILENAME.xml"). (See Appendix I for details)</li> <li>Correction to force Aspect Ratio update</li> </ul>   |
| V1.0.3.6   | 2010.4.6   | <ul style="list-style-type: none"> <li>H264 SD and Multiplexing encoding performance improve</li> <li>support for ViewCast Osprey latest drivers</li> <li>support for IP detailed settings (FEC,..)</li> </ul>  |

|                 |           |  |
|-----------------|-----------|--|
| <b>v1.0.2.5</b> | 2010.2.16 | <ul style="list-style-type: none"><li>• Correction for selection of DekTec input adapter with multiple ports</li><li>• Correction of DtEncode init failed when no sound device</li></ul>             |
| <b>v1.0.1.4</b> | 2010.2.1  | <ul style="list-style-type: none"><li>• Modifications and correction for XML setting file</li><li>• Support for Windows Vista and Windows 7</li><li>• Correction for QAM modulation output</li></ul> |
| <b>v1.0.0.2</b> | 2009.12.2 | <ul style="list-style-type: none"><li>• First release</li></ul>  |

## 5. DtEncode Overview

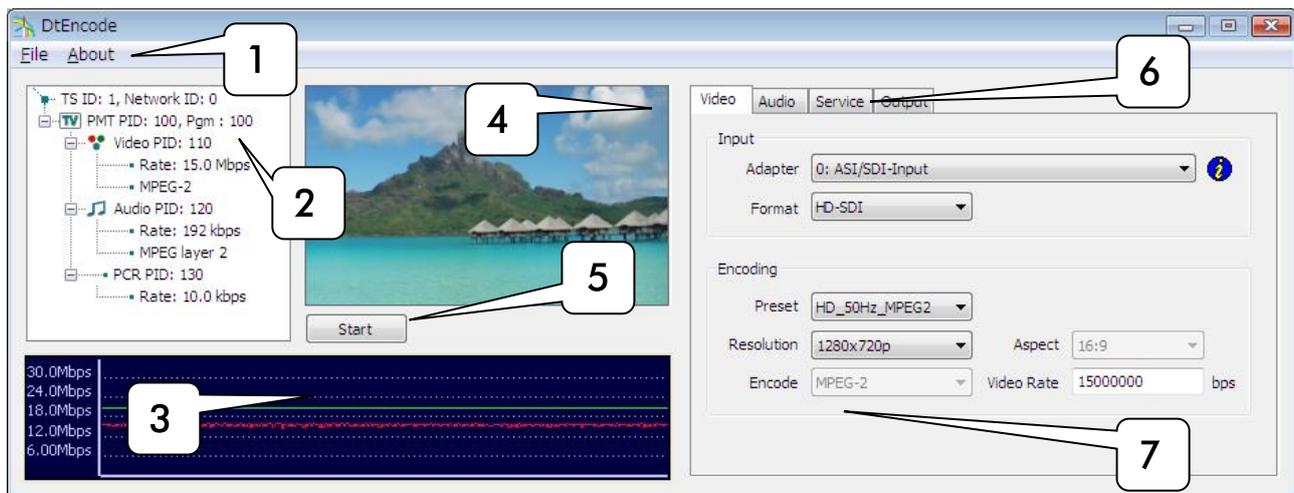
### 5.1. Launching DtEncode

Start the DtEncode program from the Start Menu: **start->All Programs->DekTec->DtEncode**, or, if available from your desktop, click on the DtEncode shortcut.

DtEncode application icon: 

DtEncode can be launched from command prompt as well. (See Appendix I for more details)

### 5.2. DtEncode Application General Layout



Application general view

|   | Item                | Explanation  |
|---|---------------------|--|
| 1 | Menu Bar            | This area displays Menu controls.  |
| 2 | TS Tree View        | This area displays the hierarchical view of the resulting TS.  |
| 3 | Rate Graph          | This area displays in real time the TS bitrate (total rate) and the data bitrate.  |
| 4 | Source Video Viewer | This window provides for visual monitoring of the input. When performing HD encoding, to reserve the maximum performance for the encoding process, this video monitor only refreshes every second. |
| 5 | Start Button        | This button permits to Start/Stop the encoding process.  |
| 6 | Tab Menu Bar        | Four Tabs permit the configuration of various settings of DtEncode   |
| 7 | Setting per Tab     | This area provides detailed settings for video, audio, service and output configuration  |

### 5.3. Menu Bar

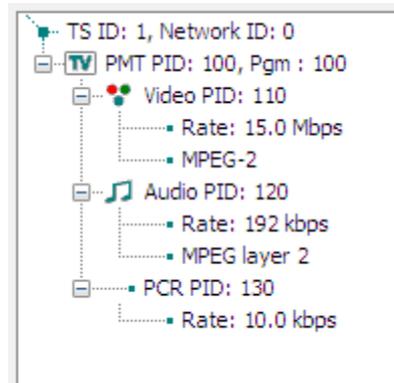
The Menu Bar permits to store and save configuration files as wells as check common information (version, etc..) about the DtEncode application.



| Menu  | Sub-Menu | Explanation  |
|-------|----------|--|
| File  |          | Permits management of DtEncode configuration files (.xml)  |
|       | Load     | A window will permit you to select the settings file to load   |
|       | Save     | The current settings file will be saved to a destination of your choice  |
|       | Save As  | The current configuration will be saved to a new file name and destination   |
| About | About    | <p>You can verify the License Information. Version information, Copyright, URL</p>  |

Please check Annex G for details about the XML structure of the configuration file XML.

## 5.4. TS Tree View



The TS Tree View shows the TS overall structure in a hierarchical view. It includes:

- TS global information: TS ID and Network ID

The TS ID (16bits) extracted from the PAT and the Network ID (16bits) extracted from the NIT.

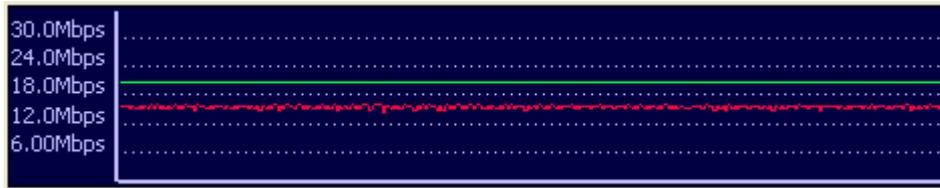
- Program/Service information

PMT PID (13bits) as contained in the PAT and the Program/Service ID (16bits) as contained in the PAT and the PMT.

- Elementary stream information

Elementary PID (13bits) values as defined in the PMT. Elementary PID can be Video PID, Audio PID, PCR PID, Data PID, Caption PID or other. For each Elementary Stream, bitrate (bps, kbps, Mbps) and the compression format (ex: "MPEG2") are indicated.

### 5.5. Rate Graph



This area displays the total TS rate (green) and data rate (red). The data rate is equal to the total TS rate minus the rate of the null (or padding) packets:

$$\text{“Data rate”} = \text{“Total TS rate”} - \text{“Null rate”}.$$

The horizontal axis shows the time while the vertical axis shows the TS rate on a scale that is adjusted automatically.



The TS rate and Used rate (data rate) values are displayed in a tooltip if you hold the cursor above the graph.

### 5.6. Source Video Viewer

This window provides a real-time visual monitor for the input signal.



This screen will be black if there is no input signal, or no input synchronization, or if there is a problem with the input adapter. The refresh rate of this input window depends on the complexity of the encoding, and may be very slow for HD H264 encoding.

### 5.7. Start Button

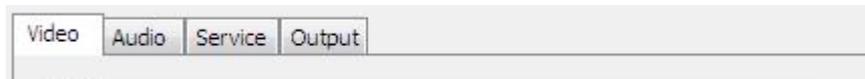
These buttons can be used to Start and Stop the encoding process.



It is recommended to Stop and Start the encoding each time a setting is changed, so to permit the application to take into account the new changes.

### 5.8. Settings Tabs

Through this menu, you can select one of four Tabs:

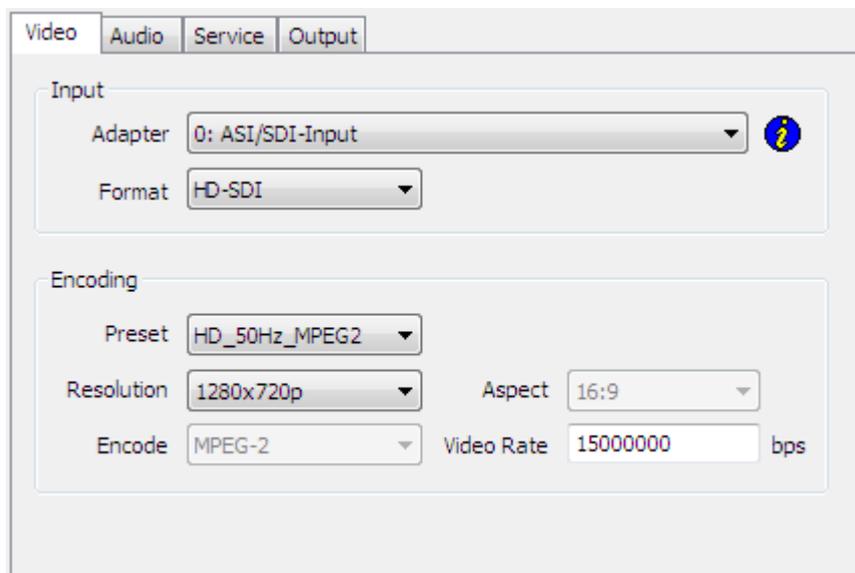


1. Video: Video Input and Video Encoding parameter configuration.
2. Audio: Audio Encode parameter configuration.
3. Service: Service Information parameter configuration.
3. Output: Output TS and Output Interfaces (ASI, RF...) parameter configuration.

### 5.9. Settings Screen

#### 5.9.1 Video Parameter

This screen permits video input and video encoding configuration.



Details are as below:

| Item1 | Item2   | Explanation   |
|-------|---------|---|
| Input |         | This area permit to select the physical input for encoding  |
|       | Adapter | <p>DtEncode detects automatically input hardwares supported by DtEncode (DekTec input adapters, third party video capture board...) and update the list of Adapter. For each adapters, following informations are reported. Format :</p> <p>[ INPUT I/F TYPE ( Product Name, PORT NUMBER ) ]</p> <p>For example : ASI/SDI-Input(DTA-145 port 1)</p> <p>DtEncode adds the current PC Screen capture input to the list of video inputs.</p> <p><b>CAUTION: For third party adapters (non DekTec), please sure that the video card is correctly detected on the system and that the latest</b></p> |

|  |  |   |
|--|--|---|
|  |  | <p>drivers from this third party are used. Also, before using it with DtEncode, confirm firstly the normal reception of video by using the software tools provided by this third party.</p> |
|--|--|---|

| Item1                   | Item2               | Explanation  |                 |             |             |                 |             |              |    |       |          |   |               |    |       |           |   |             |    |      |          |   |              |    |      |           |   |               |    |       |            |   |               |    |       |               |   |              |    |      |            |   |              |    |      |               |   |                 |      |      |                |        |                         |      |      |                |           |
|-------------------------|---------------------|--|-----------------|-------------|-------------|-----------------|-------------|--------------|----|-------|----------|---|---------------|----|-------|-----------|---|-------------|----|------|----------|---|--------------|----|------|-----------|---|---------------|----|-------|------------|---|---------------|----|-------|---------------|---|--------------|----|------|------------|---|--------------|----|------|---------------|---|-----------------|------|------|----------------|--------|-------------------------|------|------|----------------|-----------|
|                         | Adapter Information | When pushing the (i) button if you want, you can display the selected adapter information.   |                 |             |             |                 |             |              |    |       |          |   |               |    |       |           |   |             |    |      |          |   |              |    |      |           |   |               |    |       |            |   |               |    |       |               |   |              |    |      |            |   |              |    |      |               |   |                 |      |      |                |        |                         |      |      |                |           |
|                         | Format              | This is the nature of the input signal. For DekTec adapter, DtEncode will detect automatically SD-SDI(PAL) or SD-SDI(NTSC), but other input signal are possible with third party video capture boards: Composite, Component, S-Video, HDMI, HDSDI.   |                 |             |             |                 |             |              |    |       |          |   |               |    |       |           |   |             |    |      |          |   |              |    |      |           |   |               |    |       |            |   |               |    |       |               |   |              |    |      |            |   |              |    |      |               |   |                 |      |      |                |        |                         |      |      |                |           |
| Encoding                |                     | This area permits to configure the video encoding  |                 |             |             |                 |             |              |    |       |          |   |               |    |       |           |   |             |    |      |          |   |              |    |      |           |   |               |    |       |            |   |               |    |       |               |   |              |    |      |            |   |              |    |      |               |   |                 |      |      |                |        |                         |      |      |                |           |
|                         | Preset              | <p>A list of encoding Preset are available:</p> <table border="1"> <thead> <tr> <th>preset</th> <th>res.</th> <th>Vid. Encode</th> <th>aspect , signal</th> <th>About audio</th> </tr> </thead> <tbody> <tr> <td>SD_PAL_MPEG2</td> <td>SD</td> <td>MPEG2</td> <td>4:3, PAL</td> <td>-</td> </tr> <tr> <td>SD_NTSC_MPEG2</td> <td>SD</td> <td>MPEG2</td> <td>4:3, NTSC</td> <td>-</td> </tr> <tr> <td>SD_PAL_H264</td> <td>SD</td> <td>H264</td> <td>4:3, PAL</td> <td>-</td> </tr> <tr> <td>SD_NTSC_H264</td> <td>SD</td> <td>H264</td> <td>4:3, NTSC</td> <td>-</td> </tr> <tr> <td>HD_50Hz_MPEG2</td> <td>HD</td> <td>MPEG2</td> <td>16:9, 50Hz</td> <td>-</td> </tr> <tr> <td>HD_59Hz_MPEG2</td> <td>HD</td> <td>MPEG2</td> <td>16:9, 59.94Hz</td> <td>-</td> </tr> <tr> <td>HD_50Hz_H264</td> <td>HD</td> <td>H264</td> <td>16:9, 50Hz</td> <td>-</td> </tr> <tr> <td>HD_59Hz_H264</td> <td>HD</td> <td>H264</td> <td>16:9, 59.94Hz</td> <td>-</td> </tr> <tr> <td>1SEG_JP (Japan)</td> <td>QVGA</td> <td>H264</td> <td>16:9, 15.00 Hz</td> <td>AAC LC</td> </tr> <tr> <td>1SEG_SA (South America)</td> <td>QVGA</td> <td>H264</td> <td>16:9, 15.00 Hz</td> <td>HE AAC v2</td> </tr> </tbody> </table> | preset          | res.        | Vid. Encode | aspect , signal | About audio | SD_PAL_MPEG2 | SD | MPEG2 | 4:3, PAL | - | SD_NTSC_MPEG2 | SD | MPEG2 | 4:3, NTSC | - | SD_PAL_H264 | SD | H264 | 4:3, PAL | - | SD_NTSC_H264 | SD | H264 | 4:3, NTSC | - | HD_50Hz_MPEG2 | HD | MPEG2 | 16:9, 50Hz | - | HD_59Hz_MPEG2 | HD | MPEG2 | 16:9, 59.94Hz | - | HD_50Hz_H264 | HD | H264 | 16:9, 50Hz | - | HD_59Hz_H264 | HD | H264 | 16:9, 59.94Hz | - | 1SEG_JP (Japan) | QVGA | H264 | 16:9, 15.00 Hz | AAC LC | 1SEG_SA (South America) | QVGA | H264 | 16:9, 15.00 Hz | HE AAC v2 |
| preset                  | res.                | Vid. Encode  | aspect , signal | About audio |             |                 |             |              |    |       |          |   |               |    |       |           |   |             |    |      |          |   |              |    |      |           |   |               |    |       |            |   |               |    |       |               |   |              |    |      |            |   |              |    |      |               |   |                 |      |      |                |        |                         |      |      |                |           |
| SD_PAL_MPEG2            | SD                  | MPEG2  | 4:3, PAL        | -           |             |                 |             |              |    |       |          |   |               |    |       |           |   |             |    |      |          |   |              |    |      |           |   |               |    |       |            |   |               |    |       |               |   |              |    |      |            |   |              |    |      |               |   |                 |      |      |                |        |                         |      |      |                |           |
| SD_NTSC_MPEG2           | SD                  | MPEG2  | 4:3, NTSC       | -           |             |                 |             |              |    |       |          |   |               |    |       |           |   |             |    |      |          |   |              |    |      |           |   |               |    |       |            |   |               |    |       |               |   |              |    |      |            |   |              |    |      |               |   |                 |      |      |                |        |                         |      |      |                |           |
| SD_PAL_H264             | SD                  | H264   | 4:3, PAL        | -           |             |                 |             |              |    |       |          |   |               |    |       |           |   |             |    |      |          |   |              |    |      |           |   |               |    |       |            |   |               |    |       |               |   |              |    |      |            |   |              |    |      |               |   |                 |      |      |                |        |                         |      |      |                |           |
| SD_NTSC_H264            | SD                  | H264   | 4:3, NTSC       | -           |             |                 |             |              |    |       |          |   |               |    |       |           |   |             |    |      |          |   |              |    |      |           |   |               |    |       |            |   |               |    |       |               |   |              |    |      |            |   |              |    |      |               |   |                 |      |      |                |        |                         |      |      |                |           |
| HD_50Hz_MPEG2           | HD                  | MPEG2  | 16:9, 50Hz      | -           |             |                 |             |              |    |       |          |   |               |    |       |           |   |             |    |      |          |   |              |    |      |           |   |               |    |       |            |   |               |    |       |               |   |              |    |      |            |   |              |    |      |               |   |                 |      |      |                |        |                         |      |      |                |           |
| HD_59Hz_MPEG2           | HD                  | MPEG2  | 16:9, 59.94Hz   | -           |             |                 |             |              |    |       |          |   |               |    |       |           |   |             |    |      |          |   |              |    |      |           |   |               |    |       |            |   |               |    |       |               |   |              |    |      |            |   |              |    |      |               |   |                 |      |      |                |        |                         |      |      |                |           |
| HD_50Hz_H264            | HD                  | H264   | 16:9, 50Hz      | -           |             |                 |             |              |    |       |          |   |               |    |       |           |   |             |    |      |          |   |              |    |      |           |   |               |    |       |            |   |               |    |       |               |   |              |    |      |            |   |              |    |      |               |   |                 |      |      |                |        |                         |      |      |                |           |
| HD_59Hz_H264            | HD                  | H264   | 16:9, 59.94Hz   | -           |             |                 |             |              |    |       |          |   |               |    |       |           |   |             |    |      |          |   |              |    |      |           |   |               |    |       |            |   |               |    |       |               |   |              |    |      |            |   |              |    |      |               |   |                 |      |      |                |        |                         |      |      |                |           |
| 1SEG_JP (Japan)         | QVGA                | H264   | 16:9, 15.00 Hz  | AAC LC      |             |                 |             |              |    |       |          |   |               |    |       |           |   |             |    |      |          |   |              |    |      |           |   |               |    |       |            |   |               |    |       |               |   |              |    |      |            |   |              |    |      |               |   |                 |      |      |                |        |                         |      |      |                |           |
| 1SEG_SA (South America) | QVGA                | H264   | 16:9, 15.00 Hz  | HE AAC v2   |             |                 |             |              |    |       |          |   |               |    |       |           |   |             |    |      |          |   |              |    |      |           |   |               |    |       |            |   |               |    |       |               |   |              |    |      |            |   |              |    |      |               |   |                 |      |      |                |        |                         |      |      |                |           |
|                         | Resolution          | <p>Specify the video resolution for encoding video.</p> <p>Mobile : QVGA (320x180)</p> <p>SD : SD (PAL), SD (NTSC)</p> <p>HD : 1920x1080i, 1440x1080i, 1280x720p</p>   |                 |             |             |                 |             |              |    |       |          |   |               |    |       |           |   |             |    |      |          |   |              |    |      |           |   |               |    |       |            |   |               |    |       |               |   |              |    |      |            |   |              |    |      |               |   |                 |      |      |                |        |                         |      |      |                |           |
|                         | Encode              | <p>Specify the Encoding Format MPEG2 or H.264</p> <p>MPEG2: ISO/IEC 13818-2</p> <p>H.264 : ISO/IEC 14496-10</p>  |                 |             |             |                 |             |              |    |       |          |   |               |    |       |           |   |             |    |      |          |   |              |    |      |           |   |               |    |       |            |   |               |    |       |               |   |              |    |      |            |   |              |    |      |               |   |                 |      |      |                |        |                         |      |      |                |           |
|                         | Aspect              | <p>Specify the Aspect Ratio for the resulting video</p> <p>4:3 : SD</p> <p>16:9 : SD and HD</p>  |                 |             |             |                 |             |              |    |       |          |   |               |    |       |           |   |             |    |      |          |   |              |    |      |           |   |               |    |       |            |   |               |    |       |               |   |              |    |      |            |   |              |    |      |               |   |                 |      |      |                |        |                         |      |      |                |           |
|                         | Video Rate          | This is the encoded video bitrate [bps]. You can edit this directly.   |                 |             |             |                 |             |              |    |       |          |   |               |    |       |           |   |             |    |      |          |   |              |    |      |           |   |               |    |       |            |   |               |    |       |               |   |              |    |      |            |   |              |    |      |               |   |                 |      |      |                |        |                         |      |      |                |           |

### 5.9.2 Audio Parameter

This screen permits audio encoding configuration.



Details are as below:

| Item1    | Item2      | Explanation   |
|----------|------------|---|
| Input    |            | This area is to specify the audio input signal.   |
|          | Sampling   | The sampling frequency[Hz] for audio data can be selected as 24000, 32000, 44100, 48000.  |
| encoding |            | This area is to specify the audio encoding  |
|          | Encode     | This is Encoding Format MPEG1-L2 or MPEG2-AAC<br>MPEG Layer 2 : ISO/IEC 13818-3 MPEG1-Layer2<br>AAC : ISO/IEC 13818-7 MPEG2-AAC |
|          | Audio Rate | This is Encoding Rate [bps].<br>64000, 80000, 96000, 112000, 128000, 160000, 192000, 224000                                     |

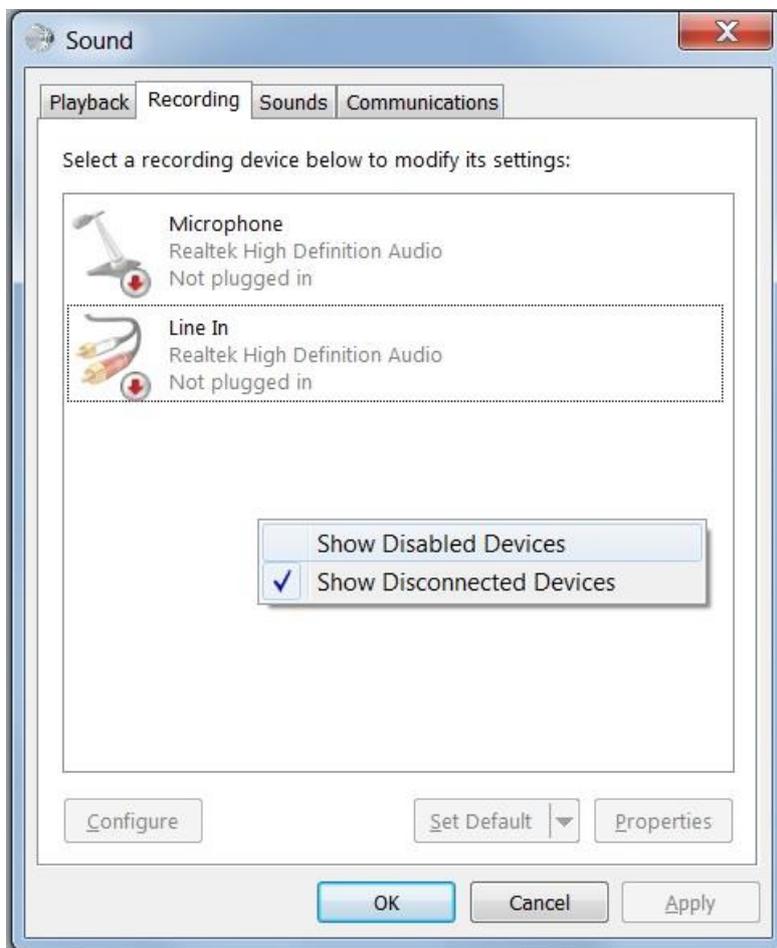
The audio input is always the one associated with your selected video input.

**CAUTION about setting your audio input in Screen Capture video input mode:**

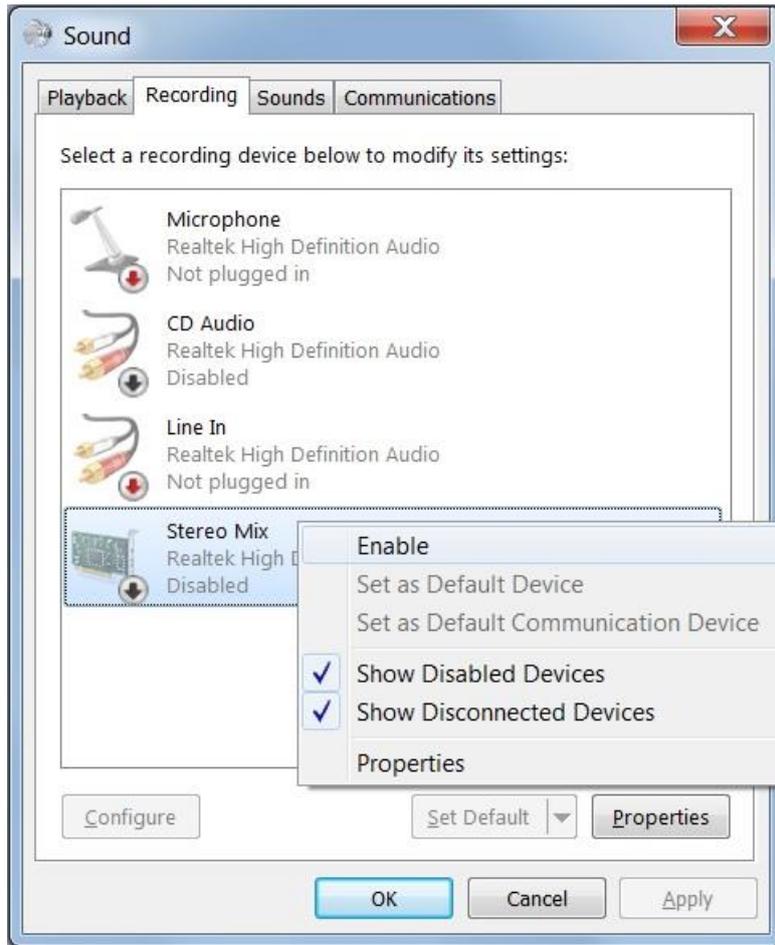
Please take into account that when using Windows 7, it is possible that you may need to enable your audio card's output as a recording device. To do so, right click on the Output level icon at the bottom right corner, and select "Recording devices":



If you do not see any device with a name such as "Stereo mix", "Loopback", "Wave out" etc. (the name depends on the driver you are using), right click on the window and select "Show disabled devices":



After doing so, the output of the audio card should appear as a new device on the list. The only thing left to do is right-clicking on it, and selecting the Enable option:



Please note that depending on the audio driver of your computer, it is also possible that this option is not usable at all. Always update your audio device's driver to the latest version.

### 5.9.3 Service Parameter

This screen permits configuration of the Service information.

The screenshot shows a configuration window with four tabs: Video, Audio, Service, and Output. The 'Service' tab is selected. Inside the 'Service' tab, there is a 'Service' section with the following fields:

- ID: 100
- Name: Demo Service
- Type: Dig. Television (dropdown menu)
- PMT PID: 100
- PCR PID: 130
- VID PID: 110
- AUD PID: 120

Details are below:

| Item1   | Item2   | Explanation  |
|---------|---------|--|
| service |         | This area is to set service information.                     |
|         | ID      | This is Service ID (16bit). From 0 to 65535.                 |
|         | Name    | This is Service Name. ( you can not edit.)                   |
|         | Type    | This is Service Type. (you can select Television, undefined) |
|         | PMT PID | This is PMT PID (13bit). From 48 to 8190 by system.          |
|         | PCR PID | This is PCR PID (13bit). From 48 to 8190 by system.          |
|         | VID PID | This is Video PID (13bit). From 48 to 8190 by system.        |
|         | AUD PID | This is Audio PID (13bit). From 48 to 8190 by system.        |

### 5.9.4 Output Parameter

This screen permits the output TS and the output adapter detailed configuration.

Details are as below

| Item1            | Item2               | Explanation  |
|------------------|---------------------|--|
| TS Output        |                     | This area is to set physical output  |
|                  | Adapter             | This software detect automatically hardware(RF output board...)<br>Format :<br>[ OUTPUT I/F TYPE ( Product Name, PORT NUMBER ) ]<br>For example :<br>QAM-Output(DTA-110) |
|                  | Details             | This is detail parameter for output I/F.   |
|                  | Adapter Information | Please push (i) button if you want. You can display selected adapter information.  |
|                  | TS Rate             | This is TS Rate [bps]. You can edit this directly.   |
|                  | Packet Size         | This is TS Packet size. You can select 188byte, 204byte<br>188byte : Normal TS<br>204byte: TS + dummy(NULL) 16 byte  |
| Multiplex Format | TS ID               | This sets the TS ID(16bit). From 0 to 65535  |
|                  | Network ID          | This sets the Network ID(16bit). From 0 to 65535<br>( you can not set.)  |
|                  | Network             | This is Network type. You can select: -, ATSC, DTMB, DVB-C, DVB-T,   |

|  |              |   |
|--|--------------|---|
|  |              | DVB-S, ISDBT-ONESEG, ISDBT-FULLSEG, QAM-B, QAM-C, etc..                   |
|  | Add Dummy SI | To add Dummy SI (necessary for reception by STB), check this "check box". |

## 6. Support Contact information

DtEncode is a joint development of **DekTec Digital Video B.V.** and **Village Island Co., Ltd.**

For assistance regarding the use of DtEncode contact us at:

### **Village Island Co., Ltd.**

2-38-14, Okusawa, Setagaya-ku,

Tokyo 158-0083 Japan

Tel: +81 3 5654 7801

Fax: +81 3 5654 7802

email: [support@village-island.com](mailto:support@village-island.com)

website: <http://www.village-island.com>

### **DekTec Digital Video B.V.**

Van Riebeeckweg 43A

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Tel: +31 35 646 92 10

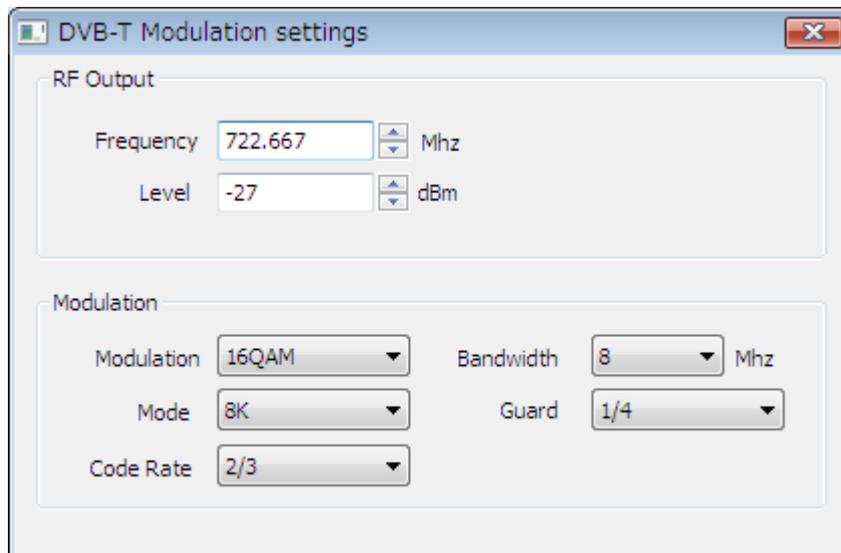
Fax: +31 35 683 10 15

email: [support@dektec.com](mailto:support@dektec.com), [info@dektec.com](mailto:info@dektec.com)

website: <http://www.dektec.com>

## Appendix A: DtEncode specific output controls for DVB-T (\*)

When using adapters that supports DVB-T modulation, a detailed configuration window permits to fine tune the RF output.



DTA-115's DVB-T RF output settings window

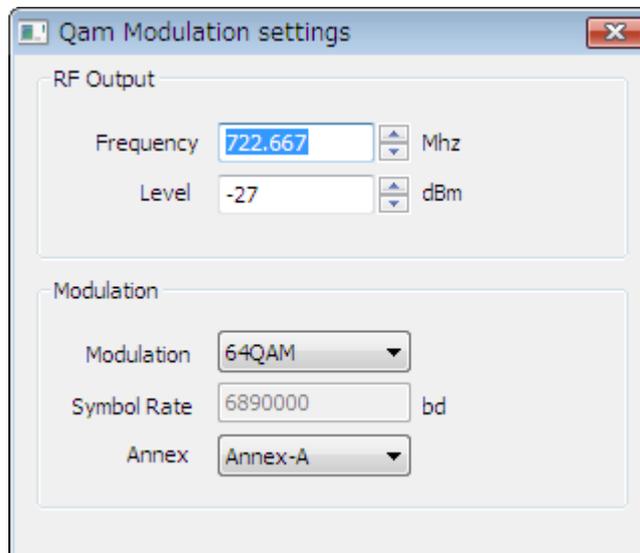
| Item1      | Item2          | Explanation  |
|------------|----------------|--|
| RF Output  |                | For RF parameters  |
|            | Frequency      | This is output frequency [MHz] of the RF modulator.<br>You can enter directly the value or use the spin button.<br>(Check your hardware specification for available range of values) |
|            | Level          | This is output level [dBm] of the RF modulator (**).<br>You can enter directly the value or use the spin button.<br>The value should be between -27dBm and +3dBm                     |
| Modulation |                | For the Modulation parameters  |
|            | Modulation     | You can select 16QAM, 64QAM or QPSK.   |
|            | Mode           | You can select 2K, 4K or 8K  |
|            | Code Rate      | You can select 1/2, 2/3, 4/5, 5/6, 7/8.  |
|            | Bandwidth      | You can select 5Mhz, 6Mhz, 7Mhz, 8Mhz.   |
|            | Guard Interval | You can select 1/4, 1/8, 1/16 or 1/32.   |

(\*) This is available if your output adapter supports this RF output.

(\*) This is only available for DTA-115, DTA-112 and DTA-2115 output adapters

## Appendix B: DtEncode specific output controls for QAM (\*)

When using adapters that supports QAM modulation, a detailed configuration window permit to fine tune the RF output.



DTA-112's QAM RF output settings window

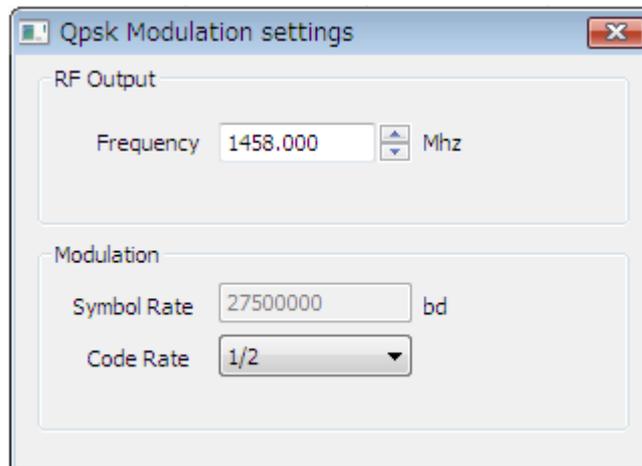
| Item1      | Item2      | Explanation  |
|------------|------------|--|
| RF Output  |            | For RF parameters  |
|            | Frequency  | This is output frequency [MHz] of the RF modulator.<br>You can enter directly the value or use the spin button.<br>(Check your hardware specification for available range of values) |
|            | Level      | This is output level [dBm] of the RF modulator (**).<br>You can enter directly the value or use the spin button.<br>The value should be between -27dBm and +3dBm                     |
| Modulation |            | For the Modulation parameters  |
|            | Modulation | You can select 64QAM or 256 QAM.   |
|            | Annex      | You can select between Annex A, B, or C..  |

(\*) This is available if your output adapter supports this RF output.

(\*\*) This is only available for DTA-115, DTA-112 and DTA-2115 output adapters

### Appendix C: DtEncode specific output controls for QPSK (\*)

When using adapters that supports DVB-S QPSK modulation, a detailed configuration window permits to fine tune the RF output.



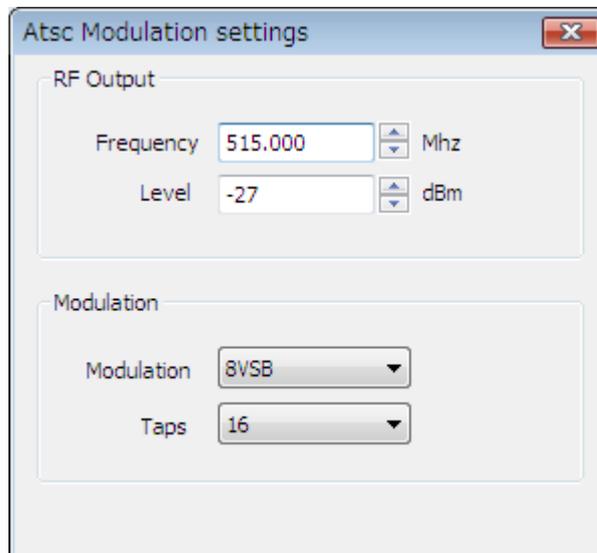
DTA-107's QPSK RF output settings window

| Item1      | Item2      | Explanation   |
|------------|------------|---|
| RF Output  |            | For RF parameters   |
|            | Frequency  | This is output frequency [MHz] of the RF modulator.<br>You can enter directly the value or use the spin button.<br>The value should be between 950Mhz and 2150Mhz |
| Modulation |            | For the Modulation parameters   |
|            | Modulation | You can select QPSK   |

(\*) This is available if your output adapter support this RF output.

## Appendix D: DtEncode specific output controls for ATSC (\*)

When using adapters that supports ATSC modulation, a detailed configuration window permits to fine tune the RF output.



DTA-115's ATSC RF output settings window

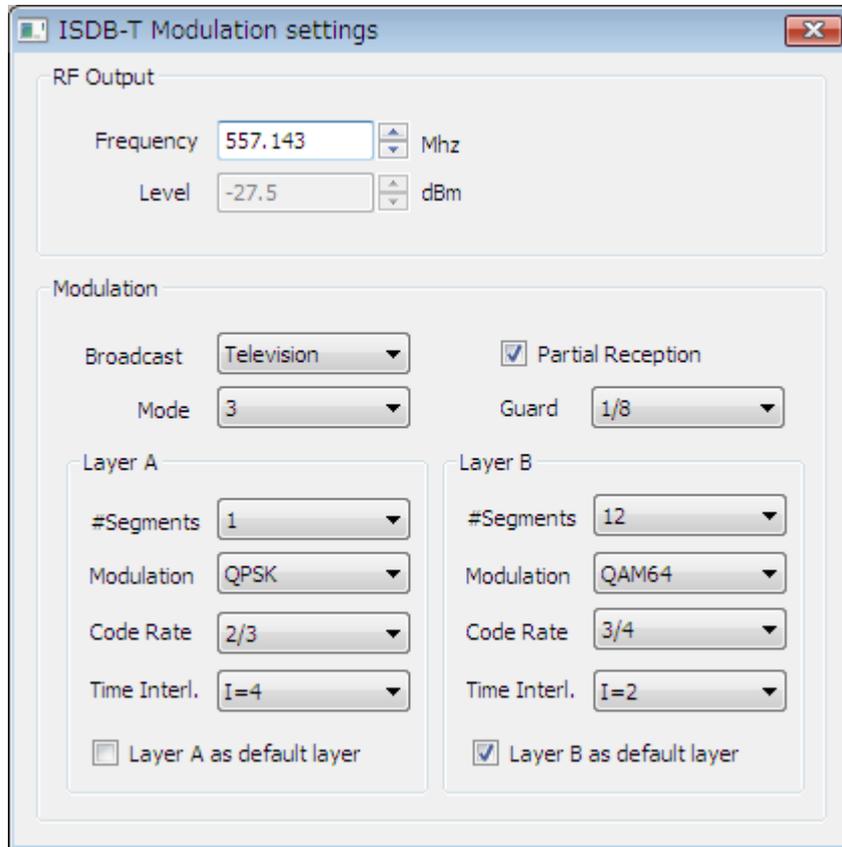
| Item1      | Item2      | Explanation  |
|------------|------------|--|
| RF Output  |            | For RF parameters  |
|            | Frequency  | This is output frequency [MHz] of the RF modulator.<br>You can enter directly the value or use the spin button.<br>(Check your hardware specification for available range of values) |
|            | Level      | This is output level [dBm] of the RF modulator (**).<br>You can enter directly the value or use the spin button.<br>The value should be between -27dBm and +3dBm                     |
| Modulation |            | For the Modulation parameters  |
|            | Modulation | You can select 8VSB or 16VSB   |
|            | Taps       | The Taps permit to define a level of perfection for the modulation.<br>Values range from 4 (lower quality, low CPU load) to 64 (best quality, high CPU load). (4, 8, 16, 32, 64)     |

(\*) This is available if your output adapter support this RF output.

(\*\*) This is only available for DTA-115, DTA-112 and DTA-2115 output adapters.

## Appendix E: DtEncode specific output controls for ISDB-T (\*)

When using adapters that supports ISDB-T modulation, a detailed configuration window permits to fine tune the RF output.



DTA-115's ISDB-T RF output settings window

| Item1      | Item2     | Explanation  |
|------------|-----------|--|
| RF Output  |           | For RF parameters  |
|            | Frequency | This is output frequency [MHz] of the RF modulator.<br>You can enter directly the value or use the spin button.<br>(Check your hardware specification for available range of values) |
|            | Level     | This is output level [dBm] of the RF modulator (**).<br>You can enter directly the value or use the spin button.<br>The value should be between -27dBm and +3dBm                     |
| Modulation |           | For the Modulation parameters  |
|            | Broadcast | You can select Digital Television, 1seg Radio, or 3seg Radio   |
|            | Mode      | You can select between 1, 2 and 3.   |

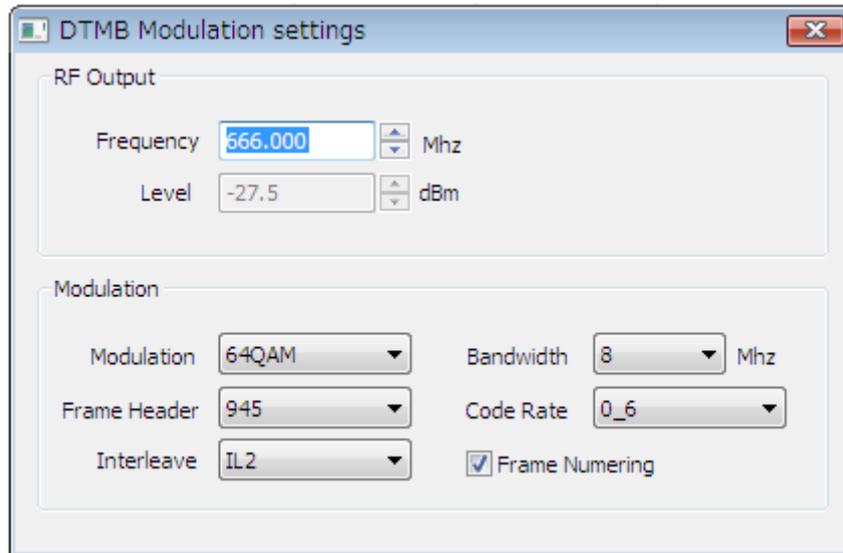
|        |                          |   |
|--------|--------------------------|---|
|        | Partial Reception        | You can check this if you use 1 seg service.  |
|        | Guard Interval           | You can select 1/4, 1/8, 1/16, 1/32   |
| LayerA |                          | This area is to set LayerA part.  |
|        | Segments                 | You can set from 0 to 13 segments.<br>Please attend LayerA + LayerB=13 segments always. |
|        | Moduration               | You can select DQPSK, QPSK, 16QAM or 64QAM.   |
|        | Code Rate                | You can select from 1/2, 2/3, 3/4, 5/6, 7/8   |
|        | Time Interlace           | You can select I=1, I=2, I=4  |
|        | Layer A as default layer | You can check this if Layer A is the default layer.                                     |
| LayerB |                          | This area is to set LayerB part.  |
|        | Segments                 | You can set from 0 to 13 segment.<br>Please attend LayerA + LayerB=13 segments always.  |
|        | Moduration               | You can select DQPSK, QPSK, 16QAM, 64QAM .  |
|        | Code Rate                | You can select from 1/2, 2/3, 3/4, 5/6, 7/8   |
|        | Time Interlace           | You can select I=1, I=2, I=4  |
|        | Layer B as default layer | You can check this if LayerB is the default layer.                                      |

(\*) This is available if your output adapter supports this RF output and is licensed for ISDB-T.

(\*\*) This is only available for DTA-115, DTA-112 and DTA-2115 output adapters

## Appendix F: DtEncode specific output controls for DTMB (\*)

When using adapters that supports DTMB modulation, a detailed configuration window permits to fine tune the RF output.



DTA-110's DTMB RF output settings window

| Item1      | Item2           | Explanation  |
|------------|-----------------|--|
| RF Output  |                 | For RF parameters  |
|            | Frequency       | This is output frequency [MHz] of the RF modulator.<br>You can enter directly the value or use the spin button.<br>(Check your hardware specification for available range of values) |
|            | Level           | This is output level [dBm] of the RF modulator (**)..<br>You can enter directly the value or use the spin button.<br>The value should be between -27dBm and +3dBm                    |
| Modulation |                 | For the Modulation parameters  |
|            | Modulation      | You can select 4NRQAM, 4QAM, 16QAM, 32QAM or 64QAM   |
|            | Frame Header    | You can select 420, 595 or 945   |
|            | Interleave      | You can select IL1 or IL2  |
|            | Bandwidth       | You can select 5Mhz, 6Mhz, 7Mhz or 8Mhz.   |
|            | Code Rate       | You can select 0_4, 0_6 or 0_8   |
|            | Frame Numbering | Check to enable to Frame Numbering   |

(\*) This is available if your output adapter supports this RF output and is licensed for DTMB

(\*\*) This is only available for DTA-115, DTA-112 and DTA-2115 output adapters

## Appendix G: DtEncode specific output controls for IP

When using adapters that supports IP output, a detailed configuration window permits to fine tune the IP output.



DTA-160's IP output settings window

| Item1         | Item2    | Explanation   |
|---------------|----------|---|
| IP Parameters |          | This area is to set IP output   |
|               | Address  | This is output stream destination IP address.   |
|               | port     | This is output stream IP port.  |
|               | Protocol | You can select UDP or RTP.  |
|               | TS/IP    | You can select the number of TS packet per IP MTU (from 1 to 7).                        |
|               | FEC      | You can fine-tune the FEC parameter.<br>( No FEC or D = from 4 to 16, L = from 1 to 20) |

## Appendix H: XML configuration file structure

The following example shows an XML configuration file.

```

<?xml version = "1.0" encoding = "UTF-8"?>
<DtEncode ConfigName="MyConfig" ConfigDescription="MyConfigDescription" ConfigCreationDate=
"20110301">
  <Video>
    <Adapter Type="2144" Port="0" Index="0" Description="ASI/SDI-Input (DTA-2144 port 1)"/>
    <Input Type="SD-SDI (PAL)"/>
    <Resolution Value="SD (PAL)"/>
    <Aspect Value="16:9"/>
    <Encoding Value="H.264"/>
    <Preset Value="SD_PAL_H264"/>
    <Rate Value="2000000"/>
  </Video>
  <Audio>
    <Sampling Value="48000"/>
    <Encoding Value="MPEG Layer 2"/>
    <Rate Value="192000"/>
  </Audio>
  <Mux>
    <PgmlId Value="2100"/>
    <PmtPid Value="210"/>
    <PcrPid Value="220"/>
    <VidPid Value="220"/>
    <AudPid Value="230"/>
  </Mux>
  <Output>
    <Adapter Type="111" Port="1" Index="2" Description="MOD-Output (DTA-111)"/>
    <Rate Value="26346021"/>
    <PacketSize Value="188"/>
    <TsId Value="2"/>
    <DummySI Value="Yes"/>
    <Network Value="DVB-T"/>
    <Frequency Value="556000000"/>
    <Dvbt CodeRate="3_4" Bandwidth="8Mhz" Modulation="qam64" Guard="1_16" Mode="8K"
Interleave="Native"/>
  </Output>
</DtEncode>

```

Video Part

Audio Part

MUX Part

Output Part

See next Appendix I about how to use command line to start DtEncode automatically from an XML configuration file

## Appendix I: DtEncode command line

DtEncode can be executed from DOS command line.

The command line window can be accessed from Windows *Start* menu > *Accessories* > *Command Prompt*, or by typing "cmd" from the *Run* command in *Start* menu.

To get the help menu, type "DtEncode -?" from the "C:\Program Files\DekTec\DtEncode\" directory.

### Automatically launching DtEncode when the PC boots

The following is an example of a .bat file to launch three instance of DtEncode encoding.

Place a shortcut of such .bat file in your *Start* menu > *startup*;

so to have the PC executing it automatically when booting and make sure to have your PC configured to automatically log-in when booting. The use of Ping 127.0.0.1 in the below example is just to create some delay before launching the DtEncode application, as the PC booting may require some time before the DekTec adapter may be ready to be used.

*DtEncodeStart.bat* file example:

```
ping 127.0.0.1
cd "C:\Program Files\DekTec\DtEncode\"
start DtEncode.exe - conf "C:\DtEncode_Start\LocalEncode_1A.xml"
ping 127.0.0.1
ping 127.0.0.1
ping 127.0.0.1
ping 127.0.0.1
start DtEncode.exe -conf "C:\DtEncode_Start\LocalEncode_1B.xml"
ping 127.0.0.1
ping 127.0.0.1
ping 127.0.0.1
ping 127.0.0.1
start DtEncode.exe -conf "C:\DtEncode_Start\LocalEncode_1C.xml"
```

### CAUTION about using DtEncode with DTE adapters

To use DTE adapters, it is necessary to launch DtEncode by using the command "DtEncode -dte"